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# Hard Red Spring Wheat Quality Report

## 1997 Crop

Physical, Chemical, Milling, & Baking Characteristics



Hard Red Spring and Durum Wheat Quality Laboratory  
United States Department of Agriculture  
Agricultural Research Service  
Harris Hall, NDSU  
RRVARC, Fargo, ND 58105  
701-231-7728















**UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
NORTHERN PLAINS AREA  
RED RIVER VALLEY AGRICULTURAL RESEARCH CENTER (RRVARC)**

**in cooperation with**

**STATE AGRICULTURE EXPERIMENT STATIONS**

**QUALITY EVALUATION OF HARD RED SPRING WHEAT CULTIVARS**

**1997 CROP<sup>1/</sup>**

**by**

**G.A. Hareland, J. G. Wear, S. A. Radi, D. P. Puhr<sup>2/</sup>, and M. Skunberg<sup>3/</sup>**

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<sup>1/</sup> This report represents cooperative investigations on the quality of Hard Red Spring Wheat cultivars from the 1997 crop. Some of the results presented have not been sufficiently confirmed to justify variety release. Confirmed results will be published through established channels. Cooperators submitting samples for analysis have been given analytical data prior to release of this report. This report is primarily a tool for use by cooperators and their official staff and to those individuals having direct and special interest in the development of agricultural research programs.

This report was compiled by the Agricultural Research Service, U. S. Department of Agriculture. Special acknowledgment is made to the North Dakota State University for use of their facilities and the services provided in support of these studies. The report is not intended for publication and should not be referenced in either literature citations or quoted in publicity and advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

<sup>2/</sup> Research Food Technologist and Physical Science Technicians, USDA/ARS Hard Red Spring & Durum Wheat Quality Laboratory, NDSU, Fargo, ND.

<sup>3/</sup> Food Technologist, Dept. of Cereal Science, NDSU, Fargo, ND.







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## INTRODUCTION

Samples of standard cultivars and experimental lines of hard red spring wheat grown in cooperative experiments in the spring wheat regions of the United States are milled each year in the USDA/ARS Wheat Quality Laboratory. Wheat and the corresponding flours are evaluated for physical and chemical properties and the flours are baked to determine bread characteristics. The purpose of this report is to present quality data on hard red spring wheat from the 1997 crop to cooperators and other interested parties.

The evaluation of wheat quality involves the analysis of kernel characteristics, milling performance, and baking performance. Methods are described on pages 4-6.

## SOURCE OF 1997 HARD RED SPRING WHEAT

The cooperating agencies and stations conducting the 1997 spring wheat nursery experiments are published in an annual report by R. H. Busch<sup>4/</sup>. Tests were performed on 1271 samples that were received from the following 19 stations in five states. Data presented in this report represents the evaluation of spring wheat from Advanced, Field Plot, Special, Preliminary, and Uniform Regional Nurseries (URN). The map on page 3 shows the URN stations. Three hundred twenty-two additional wheat samples were evaluated for milling and baking characteristics and were not included in this report.

### Minnesota Agricultural Experiment Station

Crookston, Minneapolis, Morris, North, St. Paul, South

### Montana Agricultural Experiment Station

Bozeman, Havre, Sidney

### North Dakota Agricultural Experiment Station

Carrington, Dickinson, Langdon, McKenzie County, Minot, Williston

### South Dakota Agricultural Experiment Station

Brookings, Day County, Groton,

### Washington Agricultural Experiment Station

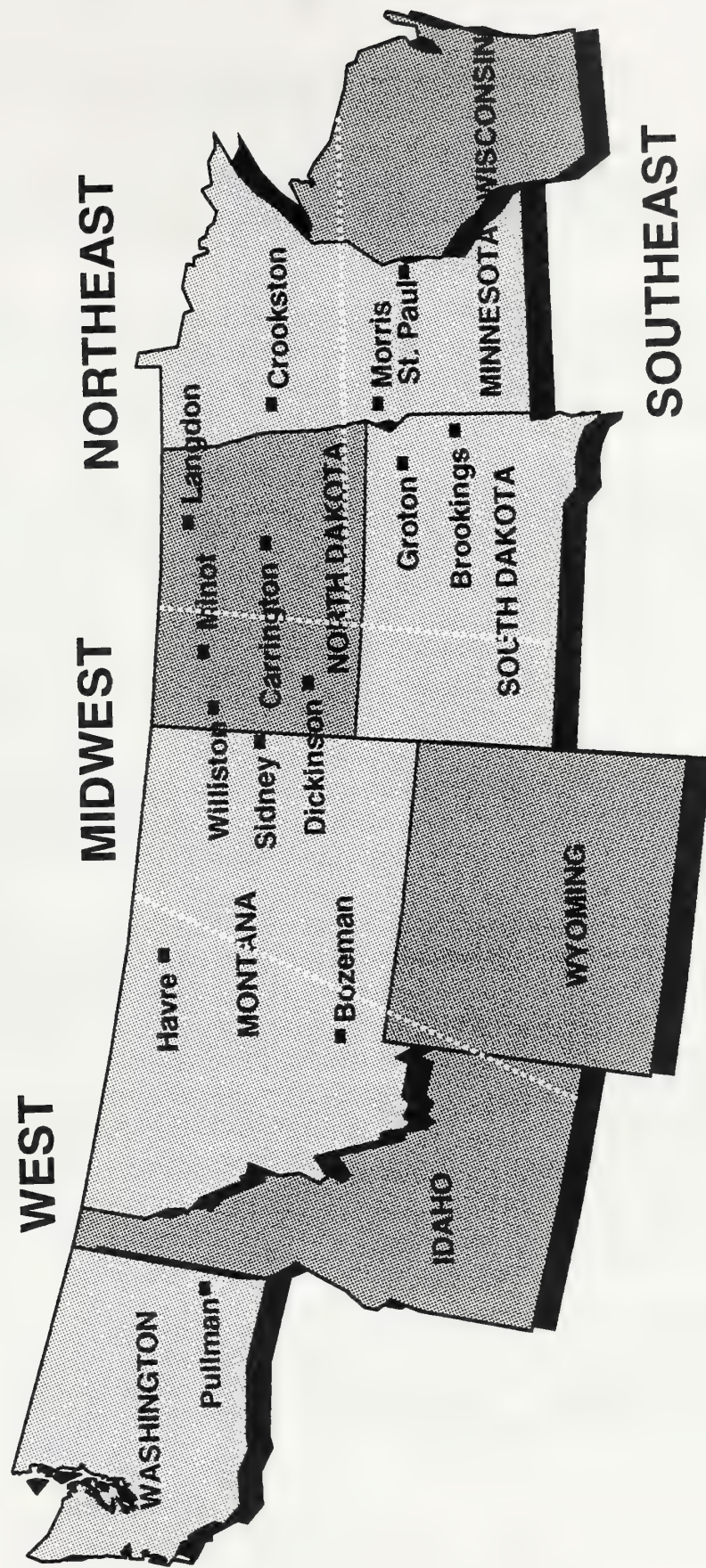
Pullman

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<sup>4/</sup> Busch, R. H. Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1997. Agricultural Research Service, U. S. Department of Agriculture and State Agricultural Experiment Station, St. Paul, MN.



# Hard Red Spring Wheat Uniform Regional Nurseries 1997 Crop Year



## METHODS<sup>5/</sup>

Test Weight Per Bushel - The weight per Winchester bushel of cleaned, dry wheat subsequent to the removal of dockage using a Carter-Day dockage tester.

1000-Kernel Weight - The weight of 1000 kernels was determined either by a Seedburo seed counter from the number of kernels in 10 g samples of cleaned, hand-picked wheat or by the Single Kernel Characterization System.

Kernel Size - The percentages of the size of kernels (large, medium and small) were determined using a wheat sizer as described by Shuey<sup>6/</sup>.

The sieves of the sizer were clothed as follows:

Top Sieve - Tyler #7 with 2.92 mm opening  
Middle Sieve - Tyler #9 with 2.24 mm opening  
Bottom Sieve - Tyler #12 with 1.65 mm opening

Milling - The samples were cleaned by passing the wheat through a Carter-Day dockage tester. The clean samples were pretempered to 12.5% moisture for at least 72 hours, then tempered to 15.5% moisture ca. 16-20 hours before milling.

Samples of wheat from the Uniform Regional, Advanced, Special, and Preliminary nurseries were milled in Brabender Quadrumat Senior mill heads. The stock from the break rolls was sifted for 60 sec on a strand sifter using #35 and #80 Tyler sieves. The throughs of the #80 sieve were classified as break flour; the overs of the #35 sieve were classified as bran; and the overs of the #80 sieve were passed through the reduction section. The reduction stock was sifted for 60 sec on a #80 Tyler sieve. The throughs were classified as reduction flour and the overs as shorts. The break and reduction flours were combined and classified as patent flour.

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<sup>5/</sup> Mention of a trademark name or a proprietary product does not constitute a guarantee or warranty of the product by the U. S. Department of Agriculture, and does not imply its approval to the exclusion of other products that may also be suitable.

<sup>6/</sup> Shuey, William C. A Wheat Sizing Technique for Predicting Flour Milling Yield. Cereal Science Today 5:71-72,75 (1960).



Wheat from the Field Plots were milled in a Buhler continuous experimental mill. The Buhler mill had been slightly modified for better comparison with commercial milling operations. Break scalping sieves were clothed with #54 stainless steel wire. Reduction scalping sieves were clothed with #58, #66 and #105 stainless steel wire for the first, second and third reductions, respectively. All flour sieves were clothed with #135 stainless steel wire.

The six flour streams from the Buhler mill were combined and classified as patent flour. The extraction of good milling wheat using this flow is approximately 68% and is comparable to commercial long patent flour. At a 68% flour extraction, changes in flour ash are most sensitive to changes in percent extraction.

Hardness Test - Wheat hardness scores were determined according to AACC Method 39-70A (1995). The procedure involved grinding the wheat samples in a Udy grinder and obtaining reflectance data from a Technicon 450 near infrared analyzer. Wavelengths at 1680 nm and 2230 nm were used. Hard red spring wheat kernels generally have NIR scores between 60 and 85.

Protein Content - Wheat and flour proteins were determined either by NIR reflectance or by the combustion method (AACC Method 46-30, 1995). Nitrogen values were multiplied by 5.7 to calculate protein values, which were reported on a 14%mb.

Mineral or Ash Content - Wheat or flour ash was determined by measuring the residual weight of minerals remaining after incinerating the sample for approximately 16 hours at 575°C. The results were reported as percentages of the sample weights. Values were reported on a 14%mb.

Mixograph Analysis - Mixograph scores were determined from 30 g of flour (as is mb) and 20 cc of water. The sensitivity spring setting was set at 10. Water absorption was adjusted according to the peak height of the mixogram. Reference mixogram patterns (page 9) illustrate different dough characteristics. Arbitrary numbers are assigned to mixograms to simplify the classification. The larger numbers indicate stronger gluten characteristics of the dough.

## Baking Formula and Procedure

100% flour	3% Non-fat Dry Milk
2% salt	1% instant dry yeast
5% sugar	2% shortening (Crisco, melted) - 100 g loaves
	1% shortening (Crisco, melted) - 25 g loaves

Flour was mixed to optimum dough development in National Manufacturing mixers: the micro mixer for 25 g samples and the 100 g mixer for 100 g samples. Ascorbic Acid (40 ppm) for oxidation and Fungal Amylase (Doh-Tone)(15SKB units) for enzymatic supplement were added to each sample. Dough was moulded in a Roll-Er-Up moulder. Samples undergo 3 hour fermentation, 1 hour proof, and a 20 minute bake time at 220<sup>0</sup> C.

Absorption - The amount of water, expressed as percent of flour, required for optimum dough consistency.

Dough Characteristics (DC) - Empirical scores ranging from 0-6 were used to classify dough as sticky-weak (0), pliable (2), elastic (3), or bucky (6). Dough should exhibit good elastic/extensible properties for optimum handling and machining.

Crumb Color (CC) - Determined by comparing the internal crumb color of the sample bread with the crumb color of a baking standard. The standard flour was an equal blend of the variety Grandin grown at Minot, ND and Brookings, SD. Empirical scores ranging from 0-6 were used to classify crumb color as yellow (0), gray (2), dull (3), creamy (5), or bright white (6).

Crumb Grain (CG) - Empirical scores ranging from 0-6 were used to classify crumb grain as irregular, thick (0), open, thick (3), or fine (6).

Crumb Texture (CT) - Empirical scores ranging from 0-6 were used to classify crumb texture as harsh (0), coarse (3), or silky (6).

Loaf Volume - The volume (cc) of the baked loaf was determined by rapeseed displacement.

## **EXPERIMENTAL RESULTS - 1997 CROP**

### **UNIFORM REGIONAL NURSERY (URN) TRIALS**

Spring wheat cultivars and experimental lines included in the URN entries are listed on page 8.

A total of 544 URN samples (Tables 1-14) were received from 14 stations in 5 states. Twenty-nine selections were experimental lines. Commercial cultivars included Butte 86 (used as the standard for comparison), Chris, Era, Marquis, and Stoa.

**ADVANCED YIELD TRIALS** - 229 samples from 8 stations, Table 15-22.

**FIELD PLOTS** - 39 samples from 4 stations, Table 23-26.

**SPECIAL NURSERIES** - 167 samples from 3 stations, Table 27-30.

**PRELIMINARY YIELD TRIALS** - 292 samples from 3 stations, Table 31-74.



# 1997 UNIFORM REGIONAL HARD RED SPRING WHEAT PERFORMANCE NURSERY

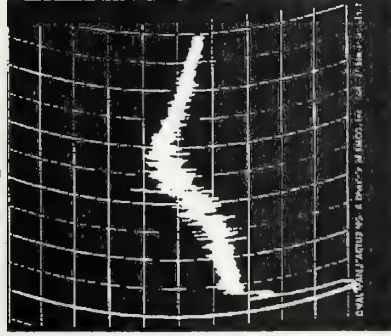
## List of Entries

Entry No.	Entry	CI No. or Pedigree	Year Entered	Source
1.	Marquis	3651	1929	CAN
2.	Chris	13751	1969	MN
3.	Era	13986	1972	MN
4.	Stoa		1987	ND
5.	Butte 86		1987	ND
6.	SD3249	SD3080/Dalen	1996	SD
7.	SD8108	SD8061/SD3118	1996	SD
8.	SD3219	SD3078/Grandin	1996	SD
9.	SD8119	SD8072/SD3105	1997	SD
10.	SD3310	SD8072/SD3067	1997	SD
11.	MN93413	Ning 8331/MN87029//MN89068	1996	MN
12.	SBE0050	W8814/Norak	1995	MN
13.	MN94200	MN89028/Grandin	1997	MN
14.	MN94055	BR 23 (Brazil) / MN90071	1997	MN
15.	SBF0402	Erik/SBY0430A	1995	NDRF
16.	ND691	Stoa*2/Carifen//Amidon	1996	ND
17.	ND694	KEENE/ND674	1996	ND
18.	ND695	IAS20*4/H567.71//Stoa/3/ND674	1996	ND
19.	ND704	Grandin*2//Colonias/Amidon	1997	ND
20.	MT9433	MT8808/Marberg	1996	MT
21.	MT9508	Fortuna/Pondera//Pondera	1997	MT
22.	B91-0228	BPC'S'/Junin//B.Chme	1997	AGRIP
23.	N93-0119	N88-0436/Dalen	1997	AGRIP
24.	N93-0136	C84-0057/W87-0069//Bergen	1997	AGRIP
25.	N93-0211	N86-1076/Dalen	1997	AGRIP
26.	Sharpshooter	Sharp/Sumai#3	1996	WPB
27.	BZ 987-331		1997	WPB
28.	T801.93	Chilero/Born	1996	TRI
29.	T1052	Victoria INTA//Junin/Buck Pucara Sib	1997	TRI
30.	NX95-5106		1997	HYB
31.	SDM50005	VANCE/SUNSTAR1	1996	SUN
32.	WA7802	HF820049/WA007301//Tecumseh/ K8405055	1997	WA
33.	TX92U2317	Agatha*4/Yecora 70//TX81V6603	1997	TX
34.	BW693		1997	SASK

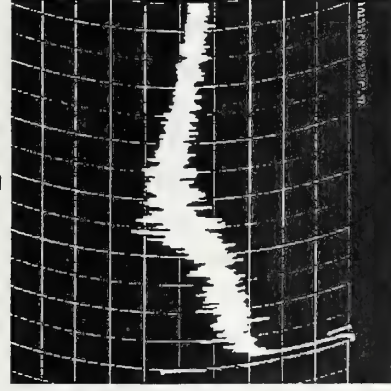
\* Solid stem lines for sawfly resistance,

# Reference Mixograms 3

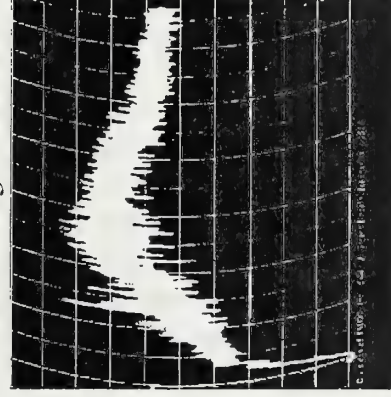
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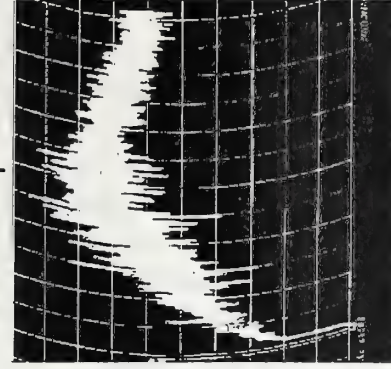
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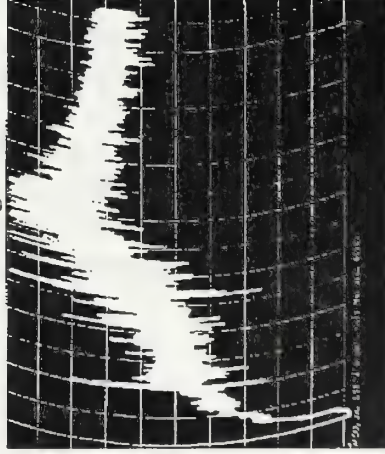
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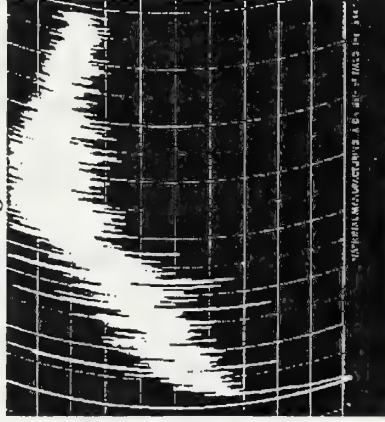
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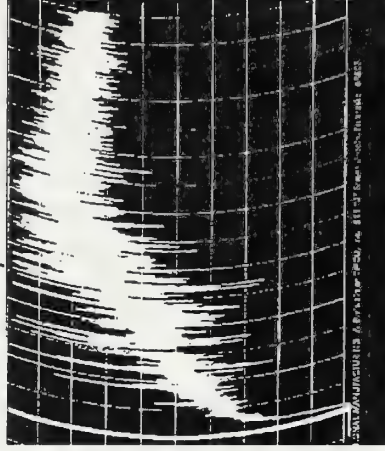
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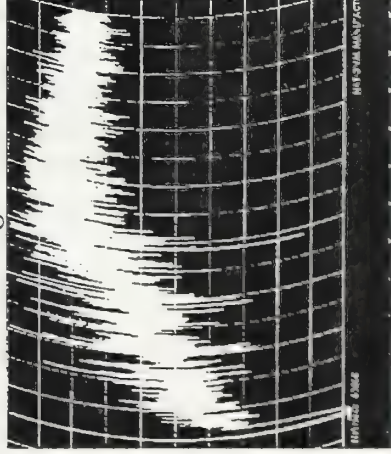
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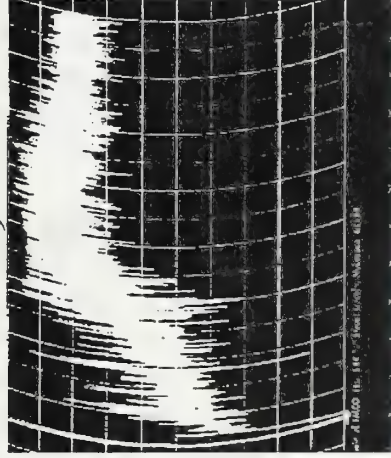
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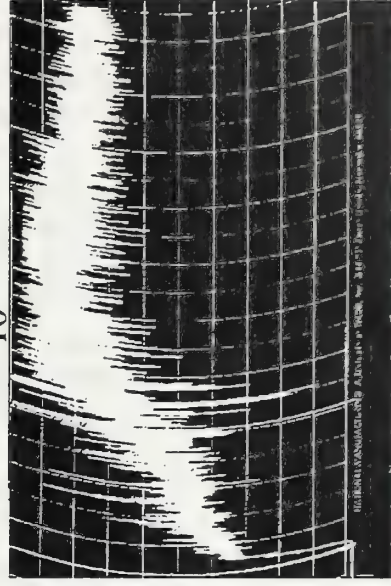
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9



10





## DISCUSSION

The following discussion presents the basic techniques and criteria used in the quality evaluation of the Hard Red Spring Wheat cultivars.

For the Uniform Regional Nursery samples, each quality variable (except for mix time) per wheat variety or experimental line was averaged within each hard red spring wheat region (Northeast, Southeast, Midwest, and West). Values that are bolded/underlined indicate that averages are higher than the standard cultivar, Butte 86. For wheat and flour ash, bolded/underlined values are lower than the standard cultivar since high ash content is a negative factor affecting flour color.

All samples were compared with a milling and baking standard representative of the crop year. Environmental conditions within a growing location can affect the agronomic factors of the wheat, and subsequently the milling and baking factors. A wheat cultivar may be low in protein content because of the environmental growing conditions, but may contain large plump kernels with good milling characteristics. Wheat grown in one environment may exhibit weak gluten characteristics that are inconsistent with the same cultivar grown in another environment. Preferably, a commercial cultivar of wheat should have tolerance (protein stability) to a wide range of environmental conditions.

Kernel Characteristics are important for determining the initial value of wheat. Poor kernel characteristics could disqualify an experimental line from further consideration in a breeding program. High test weight is an indicator of grain soundness. Plump kernels are desirable because of the high ratio of endosperm to bran. Low 1000-kernel weight and small kernel size distribution affect milling performance and flour yield. High wheat ash affects the ash content of the flour. Wheat protein quality and quantity are important characteristics when comparing cultivars that are grown at the same location. Low protein wheat impacts bread baking performance.

Milling Performance is an important characteristic of spring wheat. Low extraction and high flour ash are major factors that are unacceptable in commercial milling operations. As a general rule, an increase of 0.01% in flour ash content is equivalent to an increase of approximately 2% in flour extraction.



Milling Characteristics: Different milling techniques are required for hard and soft wheat. Each type of wheat requires different roll pressure, clothing, sifter surface, and tempering to be milled properly. Blending wheat with different hardness characteristics is undesirable and impacts the milling operation. Adjustments would either have to be made in the mill flow or in the tempering procedure to compensate for differences in kernel hardness. During the milling operation, the amount of flour protein recovered from wheat is important. High protein wheat yielding low protein flour is undesirable.

Mixogram Patterns are important for estimating the strength and potential mixing tolerance of flour. From the reference mixogram patterns (page 9), patterns 4 - 8 indicate flours with optimum mixing tolerance and gluten strength. Mixogram patterns 9 - 10 indicate flours with long mixing times, and strong gluten characteristics, whereas, patterns 1 - 3 indicate flours with weak gluten characteristics and short mixing times. Both the pattern and length of the curve should be considered in the evaluation. Abnormal curves, such as sway-back or long initial times to incorporate water, indicate undesirable characteristics.

Baking evaluation takes into account flour water absorption, mixing time, dough characteristics, loaf volume, crumb texture, and machinability. Flour with low water absorption is undesirable. Flour with a short mix time is undesirable and exhibits weak gluten characteristics.

The crumb grain or appearance of the interior of the loaf indicates the structural integrity during baking. Crumb grain is likely related to gluten protein properties (quantity and quality).

Bread loaf volume indicates the potential strength of dough. Optimum loaf volume demonstrates the capacity or lack thereof, for the dough to expand under pressure and to contain the entrapped gases during expansion. Weak dough tends to collapse and yields bread with low loaf volume or yields bread with large volume containing large holes in the interior. Low protein flour produces dough with undesirable elasticity and extensibility to expand adequately during fermentation or baking and thus yields bread with low loaf volume. Tough or bucky dough is bound too tightly for adequate expansion of the gases, which results in bread with low loaf volume. Loaf volume is a characteristic that is likely related to gluten functionality.

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 1

LOCATION: <i>Carrington, ND</i>										FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)		
					A	B	C		PRO	ASH		D	C										C	Rating-----
Marquis	59.8	28.9	52	3	1	10	34	55	66.1	65	14.1	1.85	59.5	12.9	0.46	55.8	2	55.8	3.75	2	3	3	6	178
Chris	59.6	26.8	56	4	2	7	23	68	70.6	69	14.8	1.79	66.4	14.1	0.44	56.5	2	56.5	3.25	3	3	3	6	186
Era	57.5	26.4	46	4	3	6	24	67	66.8	67	13.4	1.76	62.5	12.0	0.43	51.6	2	51.6	3.50	2	5	3	5	179
Stoa	58.0	27.4	47	6	2	5	16	77	72.6	65	14.4	1.90	59.1	13.6	0.40	57.3	3	57.3	3.75	3	5	4	6	201
Butte 86	59.4	32.1	68	2	10	27	29	34	55.0	52	14.5	1.84	57.0	14.1	0.41	57.6	3	57.6	3.75	3	4	3	5	196
SD3249	62.6	28.8	54	4	4	11	30	55	63.8	60	14.1	1.88	60.4	13.5	0.39	56.9	3	56.9	4.00	2	4	4	6	185
SD8108	62.0	29.5	62	2	4	17	35	44	61.4	60	14.1	1.80	55.1	13.1	0.38	55.5	3	55.5	4.25	3	4	4	6	183
SD3219	60.6	28.5	64	2	1	3	22	74	74.6	66	14.1	1.76	60.6	13.1	0.40	59.3	4	59.3	3.25	3	3	4	6	192
SD8119	60.1	30.9	57	1	2	7	27	64	65.3	76	14.3	1.83	61.1	13.0	0.42	57.6	3	57.6	3.50	3	3	5	5	187
SD3310	59.0	29.2	49	3	3	12	30	55	63.4	63	15.2	1.81	59.6	14.7	0.40	59.0	2	59.0	3.00	3	3	5	6	208
MN93413	58.3	27.6	47	3	4	11	30	55	63.0	56	13.9	1.76	53.1	13.1	0.43	55.5	3	55.5	5.50	3	3	3	5	187
SBE0050	59.0	30.8	56	4	3	19	40	38	58.9	64	13.8	1.78	58.3	12.8	0.44	54.3	2	54.3	4.00	3	4	3	5	188
MN94200	60.1	32.9	59	2	8	28	35	29	51.7	51	14.4	1.86	53.8	14.0	0.40	56.5	2	56.5	3.25	2	5	3	5	182
MN94055	59.9	30.0	58	3	5	15	27	53	62.4	62	13.6	1.70	54.5	13.1	0.41	52.2	2	52.2	3.25	3	4	5	5	188
SBF0402	59.3	29.5	56	4	3	9	32	56	65.5	61	13.2	1.70	55.7	12.3	0.41	55.0	2	55.0	4.00	2	3	3	5	203
ND691	59.0	26.8	30	6	2	4	23	71	70.0	64	13.6	1.72	53.2	13.0	0.42	55.8	3	55.8	4.50	3	3	3	6	198
ND694	59.8	30.2	66	4	5	22	35	38	56.8	53	13.9	1.78	56.0	13.2	0.38	55.8	3	55.8	4.50	3	3	3	5	184
ND695	59.1	29.8	57	3	3	10	30	57	65.6	62	14.6	1.67	57.9	13.8	0.40	55.5	2	55.5	3.75	3	3	3	6	208
ND704	60.8	29.8	69	2	0	7	26	67	68.8	75	14.5	1.67	63.4	14.0	0.38	57.9	3	57.9	4.00	3	3	3	6	196
MT9433	58.4	28.9	51	3	3	6	23	68	72.1	76	14.9	1.80	61.3	13.9	0.43	58.6	3	58.6	3.50	3	3	5	6	198

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 1 (cont)

FARGO, ND

LOCATION: *Carrington, ND*

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				HARD-NESS		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	G	C	T	VOL (cc)		
					A				B	C	D	INDEX	NIR	PRO	ASH (14% mb)	EXT (%)													PRO	ASH (14 % mb)
					A	B	C	D																						
MT9508	59.9	30.5	50	5	10	23	29	38	54.9	54	14.5	1.80	55.7	13.9	0.38	56.9	2	2	56.9	3.25	3	6	5	6	6	6	201			
B91-0228	59.4	28.4	42	3	2	6	26	66	69.6	64	14.8	1.88	53.5	14.1	0.43	57.3	3	3	57.3	4.00	2	5	3	6	6	6	195			
N93-0119	59.8	29.8	73	3	1	1	15	83	84.1	86	14.7	1.72	54.4	13.2	0.42	56.9	2	2	56.9	3.00	2	3	3	3	6	6	186			
N93-0136	58.0	28.9	54	3	3	14	33	50	63.0	59	13.9	1.89	55.3	12.8	0.40	52.9	2	2	52.9	4.00	2	3	3	3	5	6	181			
N93-0211	58.0	27.8	47	5	6	16	25	53	63.0	64	14.7	1.85	54.0	13.9	0.41	56.5	3	3	56.5	3.00	3	5	5	6	6	6	192			
Sharpshooter	60.1	28.1	56	4	4	15	31	50	62.3	61	14.0	1.74	52.8	13.8	0.37	57.3	3	3	57.3	3.00	3	3	5	6	6	6	191			
BZ987-331	57.1	27.4	47	4	3	7	23	67	66.5	64	14.6	1.94	50.2	14.1	0.43	57.6	3	3	57.6	3.50	3	3	3	6	6	6	202			
T80193	56.9	30.8	44	4	3	13	35	49	60.0	59	14.0	1.79	48.4	12.9	0.49	57.6	3	3	57.6	3.50	3	4	3	6	6	6	196			
T1052	57.1	28.3	47	4	4	9	27	60	68.2	74	14.2	1.77	51.2	13.3	0.44	57.9	3	3	57.9	3.50	3	3	3	6	6	6	201			
NX95-5106	57.9	28.6	41	4	7	16	33	44	58.6	59	14.8	1.88	46.9	14.6	0.44	58.2	3	3	58.2	3.00	3	5	3	6	6	6	202			
SDM50005	56.6	28.0	47	4	6	18	29	47	59.1	57	14.3	1.97	44.2	14.0	0.42	57.9	2	2	57.9	3.25	3	3	3	6	6	6	190			
WA7802	56.2	28.7	43	5	3	16	32	49	59.2	61	14.2	1.78	50.5	13.9	0.41	57.3	3	3	57.3	4.00	3	4	4	6	6	6	187			
TX92U2317	57.0	31.2	49	4	3	10	33	54	62.6	63	13.8	1.82	44.0	12.9	0.47	57.6	3	3	57.6	4.00	3	4	4	6	6	6	188			
BW693	56.1	30.4	63	2	10	24	32	34	54.1	55	14.6	1.83	40.9	14.4	0.43	60.5	4	4	60.5	3.50	3	3	5	6	6	6	191			

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):  
CRUMB COLOR (CC):  
CRUMB GRAIN (CG):  
CRUMB TEXTURE (CT):

0		3		6	
STICKY-WEAK	ELASTIC	PLIABLE	BUCKY	CREAMY	BRIGHT WHITE
YELLOW	DULL	GREY	OPEN, THICK	FINE	SILKY
IRREG, THICK	COARSE				
HARSH					



## Table 2

**FARGO, ND**

LOCATION: CROOKSTON, MIN																													
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS								NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAR VOL (cc)
					DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	FLOUR EXT (%)	FLOUR																
					A	B	C	D					INDEX	PRO	ASH (14% mb)														
Marquis	56.5	26.5	54	5	2	9	26	63	65.5	60	14.7	1.98	40.5	14.0	0.57	58.2	3	58.2	3.00	3	3	3	5	192					
Chris	57.3	26.5	59	5	4	8	26	62	65.5	69	15.3	1.90	49.5	15.2	0.46	59.3	3	59.3	3.00	3	3	3	5	195					
Era	57.4	26.2	37	8	3	10	24	63	64.5	60	13.8	1.81	60.6	12.9	0.47	56.2	2	54.4	3.50	2	3	5	5	189					
Stoa	56.6	29.3	48	6	3	8	26	63	63.8	70	15.5	1.86	54.9	14.8	0.41	61.1	4	59.2	3.25	3	3	5	6	195					
Butte 86	57.8	30.3	68	6	2	6	27	65	65.3	72	15.1	1.73	60.5	13.8	0.41	59.3	2	57.1	3.00	3	3	3	5	196					
SD3249	61.0	29.3	64	3	2	13	33	52	63.1	65	15.3	1.75	59.5	14.2	0.37	59.3	3	55.3	4.00	3	3	3	5	208					
SD8108	57.4	28.7	54	6	6	20	37	37	55.1	56	14.4	1.78	60.0	13.5	0.38	57.6	3	53.4	5.25	3	3	3	5	194					
SD3219	60.9	30.6	67	3	1	7	27	65	63.7	67	14.1	1.72	62.9	12.9	0.43	55.3	2	53.0	5.50	2	3	3	5	185					
SD8119	56.8	30.2	69	2	1	4	30	65	64.4	76	14.7	1.83	61.0	13.9	0.46	59.6	3	57.5	3.25	3	3	5	5	203					
SD3310	60.5	30.7	74	2	8	26	39	27	52.2	58	14.7	1.67	60.1	14.4	0.38	58.6	3	57.9	3.00	2	3	5	5	186					
MN93413	57.9	32.3	68	3	1	7	33	59	64.3	83	13.2	1.72	57.9	11.8	0.48	56.5	2	54.5	3.50	2	3	3	5	188					
SBE0050	58.9	29.5	49	4	1	7	30	62	64.5	66	14.3	1.81	57.2	13.5	0.48	57.6	3	55.4	4.50	3	5	4	5	206					
MN94200	58.2	26.5	51	6	1	4	15	80	74.3	76	14.1	1.75	56.3	13.2	0.42	56.9	2	54.6	4.00	3	3	3	5	200					
MN94055	59.1	32.4	68	3	4	15	35	46	59.3	54	14.2	1.67	50.9	13.4	0.39	55.0	2	53.1	3.00	2	1	5	5	180					
SBF0402	58.6	31.2	71	2	6	30	32	32	53.3	61	15.6	1.74	52.6	14.8	0.36	56.9	3	54.6	5.00	3	5	4	5	192					
ND691	58.6	27.5	51	4	1	2	12	85	80.5	84	14.9	1.68	63.6	14.2	0.42	59.6	4	57.5	4.50	3	3	3	6	210					
ND694	61.0	29.7	72	2	0	5	24	71	69.0	72	16.1	1.79	61.9	15.0	0.38	59.3	3	57.1	3.25	3	5	3	6	195					
ND695	58.7	30.3	47	3	2	10	28	60	65.7	62	15.6	1.78	60.6	15.3	0.38	58.6	3	56.9	3.00	3	3	3	6	190					
ND704	58.6	28.1	61	4	2	5	22	71	67.0	72	14.7	1.75	63.4	13.7	0.37	56.9	3	54.6	4.25	3	1	3	4	187					
MT9433	57.3	27.5	48	8	1	3	13	83	73.4	82	15.3	1.99	59.0	14.0	0.48	58.2	3	56.2	3.00	3	3	3	6	192					

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 2 (cont)

FARGO, ND

LOCATION: Crookston, MN

LOCATION: Crookston, MN																										
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS				HARDNESS		NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)	
					A	B	C	D	INDEX	PRO		ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)											
MT9508	55.3	28.0	22	12	12	25	32	31	53.1	41	14.0	1.78	48.1	13.8	0.41	56.9	2	54.6	2.50	2	3	5	5	5	202	
B91-0228	59.5	29.1	42	7	1	4	19	76	70.0	77	14.4	2.01	61.4	13.3	0.45	57.3	3	55.0	6.00	3	3	3	3	6	6	202
N93-0119	56.8	28.0	41	8	1	4	17	78	72.4	80	15.3	2.02	53.5	14.0	0.50	58.6	3	56.7	4.00	3	4	3	4	3	6	201
N93-0136	60.5	29.5	65	3	3	12	34	51	60.9	62	13.5	1.75	62.0	12.5	0.43	53.8	2	52.0	4.00	2	1	3	5	5	5	175
N93-0211	59.1	28.6	59	2	2	9	21	68	68.1	64	15.1	1.85	57.4	13.9	0.42	57.3	3	55.0	4.00	3	3	5	5	5	5	203
Sharpshooter	61.2	31.0	46	3	7	29	36	28	52.8	57	14.5	1.62	59.2	14.2	0.37	57.3	2	55.0	2.50	2	3	3	4	3	4	185
BZ987-331	50.9	29.2	51	6	17	30	32	21	48.2	28	14.0	2.00	45.4	13.3	0.53	59.0	3	57.2	5.00	3	1	3	6	6	6	213
T801-93	55.1	33.0	63	4	3	12	34	51	59.6	63	14.6	2.00	54.5	13.4	0.61	59.3	4	57.2	5.00	3	3	3	3	6	6	210
T1052	60.1	31.1	49	4	5	16	35	44	56.5	61	15.2	1.91	50.7	14.5	0.45	56.9	3	54.6	6.00	2	5	3	6	6	6	188
NX95-5106	55.9	29.8	54	4	5	12	35	48	60.2	52	14.6	1.88	50.2	14.2	0.47	56.9	3	54.6	6.25	3	4	4	6	6	6	207
SDM50005	56.6	28.1	49	7	9	22	34	35	54.2	49	14.1	1.79	49.3	13.8	0.43	55.5	2	53.5	3.50	2	4	3	5	5	5	178
WA7802	53.4	28.8	48	5	8	23	36	33	54.4	49	14.2	1.92	51.9	13.5	0.46	55.6	3	53.5	4.00	2	4	3	6	6	6	189
TX92U2317	56.2	27.6	34	7	1	5	24	70	65.4	63	13.3	1.76	50.2	12.1	0.46	53.8	2	52.0	4.50	2	3	5	6	6	6	187
BW693	57.2	31.5	74	4	7	27	37	29	52.8	74	15.2	1.77	57.7	14.7	0.42	57.9	3	55.8	2.25	3	4	3	6	6	6	196

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE  
FINE  
SILKY

6

3

0

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 3

LOCATION: <i>Langdon, ND</i>										FARGO, ND																			
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	D C	C G	C T	LOAF VOL (cc)			
					A	B	C	D	INDEX			PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)													
									D	INDEX							NESS										PRO	ASH (14% mb)	EXT (%)
Marquis	58.7	33.2	82	1	6	25	35	34	54.7	71	14.3	1.84	51.6	13.5	0.46	55.5	2	55.5	3.00	2	4	5	4	185					
Chris	56.6	27.3	61	2	3	18	29	50	60.0	68	15.1	1.72	44.6	14.9	0.41	56.9	3	56.9	2.75	2	4	5	4	187					
Era	55.9	24.9	41	5	2	3	18	77	71.1	71	13.7	1.85	57.0	12.8	0.46	54.6	2	54.6	3.50	2	4	5	4	191					
Stoa	55.8	29.3	56	4	1	6	27	66	67.9	68	15.0	1.80	61.2	14.6	0.43	59.6	3	59.6	3.50	3	4	3	5	198					
Butte 86	57.4	33.1	75	3	5	15	38	42	58.8	67	14.8	1.70	52.6	14.7	0.39	59.6	3	59.6	3.00	3	4	5	5	206					
SD3249	60.9	31.2	71	1	5	16	34	45	61.2	60	14.7	1.63	60.1	14.3	0.38	60.0	4	57.9	4.50	3	4	5	5	213					
SD8108	59.5	31.1	74	4	7	24	33	36	57.1	55	14.2	1.60	43.9	14.0	0.38	58.6	4	56.6	5.00	3	4	4	4	208					
SD3219	59.4	29.9	64	3	1	5	20	74	70.6	60	14.0	1.79	41.4	13.4	0.42	58.6	3	56.6	4.00	3	3	4	5	198					
SD8119	57.8	31.5	79	1	2	11	37	50	62.0	79	14.6	1.71	49.5	14.5	0.42	59.6	3	57.4	3.50	3	3	4	5	206					
SD3310	59.7	31.4	78	1	15	29	25	31	53.4	43	15.3	1.77	58.7	15.0	0.35	59.6	3	57.4	3.00	3	3	5	5	215					
MN93413	62.4	34.3	70	1	2	18	42	38	58.2	69	12.9	1.63	59.5	11.6	0.43	56.9	2	54.6	3.00	2	3	3	5	187					
SBE0050	58.2	28.9	48	3	3	5	22	70	66.7	58	14.0	1.81	63.4	13.1	0.47	58.6	3	56.8	4.25	3	3	3	4	211					
MN94200	56.6	26.5	52	3	1	4	15	80	72.5	67	13.8	1.60	56.7	12.9	0.46	60.3	4	58.3	3.50	3	4	3	5	196					
MN94055	58.2	32.2	71	1	5	15	33	47	61.6	54	13.7	1.66	50.9	13.0	0.41	57.6	2	55.4	2.00	2	1	3	3	175					
SBF0402	59.0	33.6	67	2	6	23	31	40	58.9	66	15.4	1.56	58.4	15.2	0.36	59.0	4	57.2	4.75	2	3	3	4	194					
ND691	55.7	27.7	58	2	1	3	11	85	77.4	65	14.2	1.54	52.5	13.5	0.43	57.9	3	53.9	5.00	3	3	5	4	178					
ND694	59.8	30.9	80	1	0	5	18	77	76.2	66	15.4	1.69	57.0	14.9	0.35	57.9	3	56.1	3.50	3	5	3	5	203					
ND695	58.2	29.4	68	2	2	12	26	60	69.0	61	15.3	1.71	56.5	14.9	0.37	59.0	3	57.2	3.00	2	1	3	5	180					
ND704	59.8	30.9	69	1	2	9	28	61	66.9	67	14.4	1.62	59.4	14.0	0.37	57.3	3	55.3	3.50	2	3	3	4	176					
MT9433	55.7	29.1	57	4	4	6	20	70	71.8	65	14.2	1.83	57.9	13.2	0.46	56.9	2	54.6	2.50	2	3	3	4	176					



1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 3 (cont)

FARGO, ND

LOCATION: Langdon, ND

LOCATION: <i>Languan, ID</i>																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)		
					A	B	C		D	INDEX	PRO	ASH (14% mb)	FLOUR EXT (%)	PRO									ASH (14 % mb)	Rating-----
MT9508	55.3	28.4	28	6	13	25	27	35	54.5	34	14.1	1.85	47.9	13.9	0.41	59.0	2	57.1	2.00	2	4	3	4	188
B91-0228	59.1	31.7	58	3	2	8	27	63	65.5	63	14.6	1.85	53.0	13.6	0.45	58.6	3	56.7	4.50	3	5	3	5	214
N93-0119	60.7	30.4	73	1	1	3	15	81	78.3	80	14.7	1.79	56.3	13.4	0.44	58.6	2	56.7	3.00	2	1	4	5	190
N93-0136	57.4	29.6	69	1	4	9	26	61	66.1	62	12.8	1.67	60.1	12.0	0.42	54.3	2	52.3	3.00	2	1	3	4	182
N93-0211	56.6	25.4	42	5	1	7	12	80	79.8	54	14.9	1.68	53.3	13.9	0.44	57.6	2	55.3	3.25	3	3	3	5	200
Sharpshoote	60.5	30.9	74	4	5	27	33	35	56.5	61	14.2	1.68	54.2	14.1	0.38	57.9	2	55.8	3.00	2	3	4	5	192
BZ987-331	51.7	29.2	52	4	18	30	30	22	49.0	28	14.6	1.81	43.1	14.1	0.49	59.3	4	57.1	5.50	3	4	4	4	205
T801.93	53.4	31.2	57	2	6	12	22	60	62.4	57	14.5	2.03	50.0	13.2	0.66	59.6	3	57.7	4.00	3	3	3	4	204
T1052	57.2	33.8	68	2	4	20	37	39	59.3	56	15.3	1.82	53.5	15.0	0.41	59.0	3	57.1	4.50	3	3	3	5	203
NX96-5106	53.6	28.0	50	3	4	14	29	53	62.0	39	13.8	1.83	46.7	13.2	0.50	58.2	3	56.2	3.50	2	1	3	5	210
SDM50005	56.4	31.3	60	3	17	23	34	26	49.9	52	14.3	1.86	51.2	13.8	0.43	56.2	2	54.5	3.00	2	4	3	1	183
WA7802	53.0	29.9	52	4	7	21	29	43	56.1	46	13.9	1.83	50.2	12.9	0.43	55.8	3	53.9	4.00	3	4	3	4	190
TX92U2317	54.6	31.6	54	4	5	18	36	41	58.0	56	12.9	1.67	52.6	12.3	0.42	55.5	2	53.5	4.00	2	4	3	2	179
BW693	55.9	32.5	70	1	6	27	32	35	57.3	63	15.2	1.82	59.3	14.9	0.46	59.0	2	57.1	3.00	3	4	3	4	211

DISTRIBUTION: A= % Soft

B= % Semd-Soft

C= % Semd-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BUCKY

BRIGHT WHITE

FINE

SILKY

0

3

6

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 4

FARGO, ND

LOCATION: *Minot, ND*

LOCATION: Minol, ND																											
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	Rating-----							
					A	B	C	D		INDEX	PRO		ASH (14% mb)	PRO						ASH (14 % mb)	C	C	C	G	T	C	LOAF VOL (cc)
Marquis	59.5	28.8	69	1	1	7	18	74	78.7	71	15.7	1.56	52.3	14.8	0.37	56.9	2	54.6	3.00	3	3	3	4	4	203		
Chris	58.9	26.4	54	1	1	8	21	70	74.9	68	15.9	1.49	56.8	15.4	0.37	58.6	3	54.6	4.00	3	4	5	5	5	224		
Era	59.8	28.0	51	3	1	4	28	67	70.6	66	14.6	1.58	56.9	13.5	0.47	56.9	3	52.9	4.50	3	3	5	4	4	203		
Stoa	57.6	27.3	54	3	2	3	19	76	71.9	66	15.7	1.70	55.7	14.8	0.46	60.5	4	56.2	4.00	3	3	3	4	4	200		
Butte 86	59.4	32.6	78	0	3	8	28	61	66.1	73	16.4	1.60	55.1	15.4	0.38	60.8	3	56.8	3.00	3	3	4	5	5	208		
SD3249	62.6	29.4	55	2	4	7	33	56	66.4	62	16.5	1.78	53.7	16.1	0.35	60.8	4	56.8	4.00	3	3	3	5	5	213		
SD8108	61.1	29.8	56	2	4	20	31	45	61.5	51	15.2	1.65	48.1	14.3	0.32	58.6	4	54.6	5.50	3	5	3	4	4	218		
SD3219	61.4	28.5	48	2	1	3	15	81	74.6	63	15.7	1.57	57.4	14.0	0.38	58.6	3	54.6	5.00	3	3	3	4	4	214		
SD8119	59.8	31.2	71	0	3	7	30	60	66.3	67	16.2	1.59	58.8	15.2	0.41	59.0	2	55.1	4.00	3	3	3	5	5	205		
SD3310	61.9	31.5	72	0	9	27	27	37	58.1	52	16.7	1.52	54.0	16.4	0.32	59.3	2	55.1	3.00	3	3	3	4	4	222		
MN93413	57.6	29.8	42	5	4	4	26	66	66.0	61	14.4	1.59	52.8	13.0	0.39	57.3	2	53.3	4.50	3	3	3	4	4	196		
SBE0050	59.9	28.1	34	5	2	4	20	74	68.2	45	15.5	1.56	46.8	14.6	0.36	57.9	3	54.1	5.50	3	5	3	4	4	212		
MN94200	60.2	27.3	51	2	1	5	19	75	72.4	61	15.1	1.46	52.1	13.7	0.38	58.2	3	54.4	5.00	3	3	3	4	4	200		
MN94055	60.7	32.0	71	1	8	21	30	41	56.6	44	15.6	1.60	48.6	14.9	0.36	57.6	2	53.6	2.50	3	4	5	4	4	193		
SBF0402	60.2	30.9	75	1	4	18	29	49	62.9	54	16.3	1.61	58.1	15.8	0.38	60.0	4	56.1	5.50	3	3	3	5	5	207		
ND691	58.4	28.0	67	2	1	2	15	82	77.3	64	15.5	1.50	55.3	14.4	0.42	59.6	4	55.5	6.00	6	3	3	5	5	213		
ND694	60.9	27.6	56	1	1	3	21	75	74.1	65	16.7	1.47	55.8	16.1	0.34	59.0	4	55.1	4.00	6	5	3	4	4	219		
ND695	59.7	29.8	68	1	3	7	35	55	63.2	58	16.1	1.51	53.3	15.1	0.33	59.6	3	55.5	3.50	3	4	5	5	5	220		
ND704	62.4	30.9	78	1	1	6	28	65	68.8	78	15.9	1.45	58.7	15.3	0.31	59.6	3	55.6	4.00	3	3	3	5	5	222		
MT9433	60.0	32.6	73	0	1	4	28	67	64.9	82	16.6	1.49	59.4	15.6	0.36	60.8	4	56.6	3.25	3	3	5	5	5	210		

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 4 (cont)

FARGO, ND

LOCATION: *Minot, ND*

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO (14% mb)		FLOUR EXT (%)		FLOUR PRO (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)		
					A	B	C		D	INDEX	ASH (14% mb)	EXT (%)	ASH (14 % mb)	PRO (14 % mb)										
MT9508	59.9	33.3	74	1	17	27	23	33	53.9	47	16.0	1.56	44.7	15.9	0.34	60.8	3	56.6	2.50	3	5	4	5	218
B91-0228	61.2	32.8	67	1	2	8	30	60	69.1	66	16.6	1.66	51.2	15.7	0.39	59.3	4	54.5	6.00	6	5	5	4	208
N93-0119	61.0	31.4	80	1	1	3	17	79	80.2	86	16.3	1.38	54.2	14.9	0.33	59.0	3	54.5	3.50	3	3	5	4	218
N93-0136	60.1	28.4	48	1	3	13	27	57	65.9	56	14.9	1.50	55.7	13.9	0.34	56.2	2	52.4	4.00	3	4	6	4	198
N93-0211	60.9	31.2	74	1	3	10	23	64	73.2	65	16.7	1.49	56.1	15.8	0.35	59.3	2	54.5	3.25	3	3	5	4	202
Sharpshooter	61.3	32.2	72	2	17	31	25	27	50.6	61	16.4	1.57	54.4	16.3	0.33	59.3	2	54.5	2.50	3	5	3	5	218
BZ987-331	58.2	34.8	74	2	14	23	32	31	53.6	40	15.3	1.57	42.7	15.1	0.39	60.3	4	55.6	8.00	3	4	3	4	201
T801.93	60.2	40.6	88	0	1	26	35	38	59.8	75	16.2	1.76	49.5	14.9	0.49	62.7	4	58.7	4.50	3	5	3	6	230
T1052	60.0	35.6	78	0	6	18	27	49	65.4	72	16.5	1.82	55.6	16.2	0.39	59.6	4	55.6	5.50	6	6	3	5	196
NX95-5106	59.0	33.3	74	1	2	9	30	59	68.7	54	15.5	1.58	48.8	14.7	0.39	59.0	4	54.5	6.50	6	3	3	5	207
SDM50005	60.5	32.3	71	1	8	22	35	35	56.6	64	16.5	1.72	51.4	16.1	0.42	61.1	3	56.3	3.00	3	3	4	5	208
WA7802	58.7	34.7	70	1	9	27	35	29	53.7	51	15.3	1.45	58.7	14.1	0.35	59.6	3	54.5	4.00	6	5	3	4	224
TX92U2317	58.4	31.7	67	1	4	15	37	44	60.5	52	15.4	1.56	55.1	14.5	0.42	59.3	3	54.5	4.50	3	5	3	5	207
BW693	59.3	30.8	59	1	5	20	26	49	63.3	67	16.4	1.64	59.7	15.7	0.38	60.5	3	55.2	3.00	3	6	3	5	217

DISTRIBUTION: A= % Soft

B= % Seml-Soft

C= % Seml-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK  
YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

3

ELASTIC  
DULL

CREAMY

BRIGHT WHITE

FINE  
SILKY

6



1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 5

LOCATION: <i>Brookings, SD</i>										FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)		FLOUR PRO (14% mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					DISTRIBUTION				PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14% mb)											
					A	B	C																	
Marquis	57.0	27.2	59	7	1	7	21	71	76.4	76	14.4	1.85	52.6	13.5	0.42	52.9	2	50.3	5.00	6	3	3	4	193
Chris	59.4	29.5	69	4	1	8	33	58	70.8	73	15.2	1.81	54.2	14.7	0.40	57.6	2	55.5	4.00	3	3	5	5	198
Era	58.1	28.9	55	9	5	18	27	50	59.4	66	13.6	1.81	55.4	12.4	0.41	55.8	2	54.1	5.00	3	3	3	4	184
Stoa	59.0	30.5	61	5	2	6	29	63	65.9	66	14.1	1.99	50.9	13.5	0.40	57.6	3	54.6	5.25	3	3	3	5	192
Butte 86	60.3	35.4	84	2	1	9	36	54	65.3	83	14.8	1.76	60.5	13.5	0.40	58.2	2	55.0	3.25	2	3	3	5	185
SD3249	62.2	31.4	64	4	2	9	33	56	66.6	72	14.8	1.82	56.5	14.4	0.39	59.0	4	56.5	5.00	6	3	3	6	190
SD8108	61.0	30.8	65	5	5	16	36	43	60.5	54	14.2	1.69	43.7	13.3	0.37	55.5	4	53.6	7.50	6	3	5	4	189
SD3219	61.4	33.0	73	5	1	15	29	55	62.7	77	13.3	1.70	52.8	11.8	0.38	53.8	2	52.8	6.00	2	4	3	5	174
SD8119	59.7	33.4	79	3	1	14	39	46	61.2	80	14.1	1.82	63.3	12.8	0.42	57.6	2	56.5	3.50	3	4	3	5	182
SD3310	62.2	33.9	82	2	8	26	27	39	59.1	54	14.5	1.76	60.6	13.8	0.35	57.6	2	56.5	4.00	3	3	5	5	181
MN93413	56.8	31.5	59	7	3	22	37	38	58.2	70	13.0	1.75	54.0	11.7	0.46	53.8	2	52.2	5.50	2	3	3	4	170
SBE0050	58.2	30.4	48	8	4	16	36	44	60.0	54	13.6	1.76	54.4	12.9	0.41	54.6	3	52.8	8.00	6	3	3	4	183
MN94200	60.6	30.5	65	5	3	4	25	68	69.7	83	13.8	1.66	53.2	12.1	0.42	56.9	3	54.6	5.00	6	5	3	4	182
MN94055	60.5	37.0	81	3	12	31	30	27	52.7	58	14.0	1.70	52.4	13.6	0.39	56.5	2	54.2	3.50	2	4	5	4	192
SBF0402	60.9	35.7	82	3	7	28	37	28	55.1	62	15.1	1.80	67.0	14.0	0.40	57.6	3	55.4	6.00	6	5	3	4	179
ND691	58.7	29.4	61	5	1	2	19	78	70.6	71	13.7	1.70	57.7	12.7	0.41	55.3	3	53.0	7.50	6	4	3	4	182
ND694	61.8	30.5	63	5	1	5	19	75	71.3	68	14.6	1.78	54.2	13.5	0.38	55.3	3	53.0	5.00	3	3	3	4	185
ND696	60.5	31.4	67	3	1	9	34	56	66.2	65	14.5	1.73	55.9	14.0	0.37	56.5	3	54.2	4.00	3	4	3	5	200
ND704	61.1	32.8	74	4	2	17	34	47	63.9	72	14.5	1.74	57.9	13.5	0.37	56.2	3	54.2	5.50	3	3	3	5	201
MT9433	60.2	32.7	72	4	1	9	34	56	65.6	84	14.0	1.74	58.6	13.1	0.41	55.8	3	53.9	4.00	3	5	5	5	205

## 1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 5 (cont)

FARGO, ND

LOCATION: Brookings, SD

LOCATION: Brookings, SD																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO		FLOUR EXT		FLOUR PRO		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)	
					A	B	C	D		INDEX	ASH (14% mb)	ASH (14% mb)	ASH (14% mb)	ASH (14% mb)										
MT9508	58.7	35.6	66	6	12	34	27	27	52.0	55	15.0	1.76	50.0	14.6	0.38	58.2	3	56.2	3.00	3	3	4	5	202
B91-0228	60.3	32.8	54	7	1	7	32	60	65.7	69	14.6	1.90	51.9	13.9	0.45	55.5	3	53.4	8.00	3	5	3	5	185
N93-0119	60.3	31.4	77	2	1	6	29	64	68.8	91	14.2	1.75	55.6	12.4	0.39	58.6	2	56.7	4.00	3	3	3	5	188
N93-0136	60.6	30.9	72	4	6	22	33	39	58.3	65	13.1	1.74	60.5	12.3	0.37	53.8	2	52.4	5.00	6	4	3	4	170
N93-0211	60.6	30.3	68	4	1	7	25	67	73.0	71	14.3	1.81	54.6	13.1	0.39	57.6	2	55.6	3.50	3	3	3	5	189
Sharpshoote	62.3	34.2	79	2	11	30	30	29	53.5	63	14.4	1.74	57.5	13.9	0.35	58.6	3	56.6	3.50	3	3	3	5	194
BZ987-331	57.8	36.7	81	4	18	27	30	25	50.9	42	13.8	1.90	48.4	13.4	0.35	57.6	4	55.6	9.00	6	3	5	4	188
T801.93	60.2	36.8	77	3	2	13	43	42	59.6	72	14.6	1.89	50.2	13.0	0.53	57.6	4	55.1	8.00	6	3	4	5	204
T1052	59.9	35.7	77	3	3	20	38	39	57.7	61	14.8	1.89	51.9	13.9	0.43	55.8	3	53.9	9.00	6	5	3	5	171
NX95-5106	59.4	33.5	75	3	3	16	31	50	62.7	49	14.2	1.77	45.8	13.6	0.39	56.5	4	54.2	7.00	6	3	5	5	186
SDM50005	58.4	32.1	67	5	7	26	43	24	52.8	59	14.1	1.87	54.5	13.7	0.40	58.6	3	56.6	3.00	3	5	3	5	203
WA7802	55.8	31.0	56	8	5	16	35	44	58.5	59	13.9	1.77	47.9	13.0	0.37	57.6	3	55.6	6.25	3	3	3	5	192
TX92U2317	56.0	31.1	43	6	5	16	30	49	59.5	49	13.4	1.81	45.8	12.3	0.46	53.2	2	51.1	7.00	6	5	4	4	176
BW693	56.9	28.6	71	6	3	11	27	59	67.3	70	15.0	1.97	56.5	14.5	0.40	58.6	3	56.6	4.00	3	5	4	5	205

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

## RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

FINE

SILKY

6

3

0

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 6

LOCATION: <i>Groton, SD</i>										FARGO, ND															
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					A	B	C	D		INDEX	PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14 % mb)	ASH (14 % mb)										
Marquis	53.3	20.2	5	17	1	4	13	82	77.3	60	13.9	1.75	56.5	12.7	0.42	52.6	2	50.5	3.75	2	3	3	3	4	182
Chris	57.8	23.5	22	9	2	4	11	83	78.7	73	15.7	1.81	53.3	15.2	0.38	56.9	2	54.7	3.50	2	3	3	3	5	200
Era	56.9	23.6	19	12	3	6	11	80	72.5	67	13.6	1.69	54.5	12.5	0.45	55.0	2	53.1	4.00	2	3	3	3	5	190
Stoa	59.0	26.7	30	6	2	2	14	82	74.1	66	14.9	1.71	51.2	13.9	0.35	58.2	3	56.2	4.25	3	3	3	3	5	202
Butte 86	59.5	30.2	66	2	1	3	14	82	78.5	77	15.3	1.67	53.3	13.8	0.36	58.2	2	56.2	2.75	2	3	3	3	5	197
SD3249	62.7	28.7	51	3	2	8	22	68	74.6	67	15.2	1.70	54.2	14.3	0.32	57.6	3	55.1	4.50	3	3	3	3	4	206
SD8108	61.4	30.8	76	1	2	12	29	57	69.0	57	14.8	1.68	50.5	13.7	0.33	57.6	3	55.1	4.75	3	3	3	3	4	215
SD3219	61.0	29.5	50	3	2	6	25	67	71.9	62	13.6	1.60	53.0	12.0	0.35	52.6	2	50.7	7.50	2	3	5	3	5	181
SD8119	59.6	28.7	70	1	0	2	17	81	75.2	72	14.9	1.63	57.7	13.6	0.39	57.3	2	55.1	3.00	3	3	3	3	6	194
SD3310	61.8	32.1	78	0	11	22	27	40	60.0	44	15.4	1.62	51.6	14.5	0.30	57.6	2	55.6	3.00	3	4	3	3	5	211
MN93413	59.2	26.5	50	8	1	4	18	77	72.5	73	13.7	1.66	57.7	12.2	0.41	55.5	2	53.4	3.25	3	3	3	3	5	195
SBE0050	57.9	25.8	21	8	0	6	23	71	67.5	55	14.1	1.67	51.4	13.5	0.41	55.3	2	53.1	6.50	2	5	3	3	4	195
MN94200	59.4	28.8	58	3	1	3	18	78	73.7	74	14.2	1.64	54.0	12.7	0.40	55.5	2	53.4	4.50	2	5	3	3	5	195
MN94055	59.8	31.4	67	4	1	12	31	56	64.6	57	14.0	1.66	54.0	13.0	0.37	52.2	1	52.2	3.00	1	3	3	3	4	179
SBF0402	59.7	31.0	64	3	6	18	33	43	59.4	56	15.3	1.65	55.1	14.5	0.37	57.9	3	55.8	4.50	3	3	3	3	5	195
ND691	58.7	25.5	28	6	1	2	8	89	85.0	71	14.6	1.62	55.8	13.2	0.34	57.6	2	55.6	5.50	3	3	3	3	5	195
ND694	61.0	27.7	53	2	1	2	16	81	80.0	67	15.4	1.65	52.3	14.7	0.33	58.6	3	56.6	4.50	3	6	3	6	6	210
ND695	60.1	29.3	76	1	1	5	21	73	72.6	61	15.2	1.63	54.2	14.3	0.33	56.5	2	54.3	4.00	3	5	3	6	6	193
ND704	61.4	30.1	79	2	0	3	17	80	73.0	68	15.0	1.62	58.6	14.0	0.32	56.5	2	54.4	4.00	3	5	4	6	6	195
MT9433	57.9	25.7	28	12	0	2	7	91	81.5	80	14.9	1.71	58.1	13.4	0.41	56.5	2	54.4	3.50	3	3	3	3	5	189



1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 6 (cont)

FARGO, ND

LOCATION: Grotton, SD

LOCATION: <i>Groton, SD</i>																							
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION			NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)
					A	B	C	D	INDEX	HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)								
MT9508	55.9	26.1	10	15	6	19	31	44	59.0	46	15.0	1.71	53.7	14.6	0.38	56.5	2	54.4	3.00	3	3	4	230
B91-0228	60.6	30.6	45	3	2	4	26	68	68.4	81	15.1	1.85	52.1	14.2	0.39	56.2	2	55.2	5.75	3	6	3	203
N93-0119	60.5	29.8	64	3	1	1	9	89	74.6	84	15.0	1.63	56.7	13.0	0.35	55.5	2	54.1	4.00	2	5	3	183
N93-0136	60.6	26.7	62	2	2	4	24	70	67.6	60	13.5	1.64	57.3	12.2	0.37	51.9	2	50.3	5.00	2	3	3	167
N93-0211	58.6	24.1	58	6	2	3	13	82	78.2	62	14.8	1.66	57.4	13.6	0.38	57.3	2	57.1	3.50	3	4	3	191
Sharpshoote	55.3	29.0	70	2	4	13	33	50	62.1	62	15.0	1.53	55.8	14.3	0.33	58.2	2	57.1	2.50	2	5	3	200
BZ987-331	54.6	29.3	50	2	14	32	33	21	48.2	37	13.6	1.59	45.3	13.0	0.35	56.3	3	54.4	7.00	3	3	3	205
T80193	58.7	33.3	52	2	1	5	29	65	63.8	71	14.9	1.83	51.2	13.3	0.46	59.0	3	57.1	6.00	3	3	3	222
T1052	57.6	30.5	42	4	4	22	38	36	55.4	55	15.3	1.72	53.5	14.6	0.39	57.6	3	55.2	8.00	6	5	3	188
NX95-5106	57.7	29.3	53	3	2	11	24	63	64.5	54	14.2	1.68	50.2	13.2	0.40	57.3	2	55.2	5.00	2	3	3	211
SDM50005	56.1	25.4	23	10	5	13	29	53	60.4	51	14.5	1.79	49.8	13.8	0.39	57.6	3	55.9	3.50	3	3	3	190
WA7802	53.6	25.8	53	6	7	20	35	38	55.1	58	13.8	1.71	53.3	13.0	0.39	58.2	3	56.3	4.50	3	3	5	198
TX92U2317	55.8	27.1	14	7	4	14	33	49	58.6	50	13.4	1.63	47.4	12.1	0.45	55.5	2	53.6	4.50	2	2	5	191
BW693	49.4	29.9	59	1	4	19	37	40	57.9	62	15.4	1.67	52.1	15.0	0.40	59.3	3	57.1	2.50	3	5	3	230

DISTRIBUTION: A= % Soft

B= % Seml-Soft

C= % Seml-Hard

D= % Hard

RATINGS:

DOUGH CHAIR (DC):  
CRUMB COLOR (CC):  
CRUMB GRAIN (CG):  
CRUMB TEXTURE (CT):

STICKY-WEAK  
YELLOW  
IRREG, THICK  
HARSH

PLIABLE

GREY  
DULL  
OPEN, THICK  
COARSE

ELASTIC

CREAMY  
BRIGHT WHITE  
FINE  
SILKY

0 3 6

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 7

LOCATION: Morris, MN										FARGO, ND																	
VARIETY		TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	D C	C G	C T	LOAF VOL (cc)
						A	B	C	D	INDEX	PRO		ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)											
Marquis	56.5	25.5	48	4	1	4	21	74	80.2	58	14.3	1.87	50.9	12.8	0.42	54.6	2	52.6	4.00	2	3	5	6	185			
Chris	58.6	27.0	54	4	1	3	17	79	86.0	70	16.0	1.75	56.3	14.9	0.39	57.9	3	56.2	3.50	3	3	4	4	210			
Era	58.2	25.3	35	8	0	3	13	84	78.6	71	14.1	1.85	52.8	12.8	0.40	53.8	2	52.1	4.00	2	5	3	5	206			
Stoa	57.1	26.3	40	5	1	3	4	92	88.1	69	15.9	1.92	48.6	14.3	0.42	59.0	3	57.3	3.50	3	3	5	6	213			
Butte 86	59.3	31.2	56	1	1	3	18	78	83.9	73	15.8	1.80	50.5	14.3	0.37	59.0	3	57.3	3.00	3	3	4	6	211			
SD3249	60.8	27.8	54	3	1	3	13	83	86.7	58	15.5	1.83	46.3	14.5	0.36	57.6	3	55.5	4.25	3	3	3	4	210			
SD8108	58.8	29.6	60	2	2	15	25	58	69.6	50	14.8	1.82	47.2	13.5	0.34	55.3	2	53.1	6.00	2	4	3	5	193			
SD3219	59.9	28.4	54	6	1	5	14	80	82.0	61	14.7	1.70	52.3	12.6	0.37	55.0	2	53.1	6.25	6	3	3	4	189			
SD8119	59.1	31.2	80	1	1	8	20	71	75.2	65	14.9	1.83	54.5	13.1	0.41	59.3	3	57.3	3.25	3	3	6	5	197			
SD3310	61.6	31.8	76	1	4	15	24	57	73.6	52	15.3	1.68	54.7	14.2	0.32	58.2	2	56.2	3.00	3	4	5	6	210			
MN93413	55.5	27.3	43	6	0	7	25	68	75.6	73	14.3	1.79	52.8	12.9	0.42	56.2	3	54.4	4.00	3	5	3	6	210			
SBE0050	57.4	28.2	54	4	1	4	16	79	80.4	69	14.9	1.90	50.5	12.9	0.42	56.9	3	54.7	4.00	3	5	3	5	204			
MN94200	56.9	27.0	30	7	2	4	16	78	75.8	61	15.3	1.90	51.6	14.2	0.46	57.6	3	55.5	5.00	3	5	3	6	225			
MN94055	58.4	32.0	78	1	2	12	25	61	70.5	48	15.2	1.77	52.1	14.1	0.42	55.5	1	53.3	2.50	2	4	6	5	208			
SBF0402	58.7	30.5	72	2	1	9	25	65	70.2	59	16.1	1.96	57.9	15.0	0.41	60.0	4	57.9	4.25	3	3	3	6	219			
ND691	56.6	25.4	28	7	0	2	6	92	92.1	67	14.9	1.76	56.6	13.3	0.42	59.0	4	57.3	4.50	3	3	5	5	202			
ND694	60.8	25.8	45	6	0	1	7	92	89.0	71	15.6	1.83	53.3	14.3	0.41	59.3	3	57.3	3.50	3	5	5	6	204			
ND695	60.1	28.7	67	2	1	5	20	74	77.9	55	15.4	1.87	52.8	13.7	0.37	57.6	3	55.5	3.00	3	3	4	5	219			
ND704	61.5	31.1	73	3	1	7	25	67	71.9	63	15.3	1.70	55.3	13.8	0.38	59.3	3	57.2	4.50	3	3	5	6	225			
MT9433	58.7	27.8	52	5	1	4	13	82	76.5	76	15.5	1.78	58.1	13.7	0.43	59.3	3	57.2	3.00	3	3	6	4	214			

## 1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 7 (cont)

## FARGO, ND

LOCATION: Morris, MN

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	Rating-----						LOAF VOL (cc)
					A	B	C	D		PRO	ASH	(%)		PRO	ASH					D	C	C	C	G	T	
MT9508	57.8	29.8	31	7	4	16	32	48	64.2	44	14.9	1.79	45.3	14.3	0.38	59.6	3	57.6	2.25	3	5	3	5	3	5	239
B91-0228	59.3	31.8	64	4	0	3	22	75	74.8	67	15.7	2.07	51.4	14.1	0.47	57.6	3	55.4	6.00	3	3	4	5	4	5	213
N93-0119	59.1	28.9	67	2	1	2	8	89	82.0	79	15.7	1.92	54.2	13.1	0.43	55.8	2	53.9	4.00	2	3	3	5	3	5	200
N93-0136	58.4	29.0	66	2	1	8	23	68	70.6	62	14.1	1.78	55.1	12.3	0.38	52.2	2	50.2	5.00	2	5	6	4	6	4	180
N93-0211	59.4	26.1	53	2	3	10	17	70	76.9	68	15.1	1.98	55.1	13.3	0.39	57.3	2	55.0	3.75	3	3	3	5	3	5	213
Sharpshoote	60.6	31.2	75	1	2	21	28	49	64.5	54	14.7	1.66	56.5	13.5	0.36	57.9	3	56.0	3.00	3	3	3	5	3	5	208
BZ987-331	56.5	33.1	74	1	8	28	30	34	55.7	40	14.5	1.93	45.1	13.7	0.41	59.3	4	57.2	7.00	3	3	3	5	3	5	200
T80193	57.8	32.9	71	2	1	5	30	64	66.7	68	15.2	2.08	48.8	13.2	0.54	59.3	3	57.2	4.50	3	5	3	6	3	6	225
T1052	59.4	31.8	65	2	13	24	27	36	56.3	58	15.4	2.09	49.1	14.5	0.43	56.5	4	54.1	7.50	6	3	3	6	3	6	187
NX95-5106	58.4	32.2	70	1	3	10	27	60	65.7	46	15.0	1.67	49.8	13.9	0.39	58.2	4	56.3	5.25	3	3	3	6	3	6	216
SDM50005	57.4	28.5	55	1	6	16	30	48	60.8	51	15.3	1.98	51.2	14.1	0.37	57.3	3	55.0	3.50	3	3	4	4	4	4	227
WA7802	55.0	28.4	40	5	2	12	32	54	63.4	53	14.5	1.65	47.4	13.1	0.37	56.2	3	54.1	4.50	3	5	3	6	3	6	210
TX92U2317	58.2	32.1	57	2	2	14	31	53	65.4	56	14.8	1.77	50.7	13.4	0.41	56.2	2	54.1	4.00	3	5	3	6	3	6	210
BW693	58.5	32.4	74	1	4	15	36	45	59.6	60	15.7	1.74	54.5	14.5	0.40	60.0	3	57.9	2.50	3	5	3	6	3	6	227

DISTRIBUTION; A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

## RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

FINE

SILKY

6

3

0



1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 8

LOCATION: St. Paul, MN  
FARGO, ND

LOCATION: St. Paul, Minn																													
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS				HARDNESS			NIR	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	Rating					C LOAF VOL (cc)
					A	B	C	D	INDEX	HARD- NESS	PRO		ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)													
																	C	G						T					
Marquis	57.0	28.6	68	3	1	5	22	72	72.3	69	15.6	2.08	43.7	14.5	0.46	57.3	2	55.1	4.00	3	3	3	4	195					
Chris	57.8	29.3	72	2	7	15	24	54	63.0	74	16.5	1.85	44.9	15.5	0.44	59.3	3	59.3	3.00	3	3	3	5	203					
Era	58.0	29.2	58	3	1	5	26	68	65.8	74	14.3	1.94	50.0	12.5	0.43	53.2	2	53.2	5.00	6	3	5	4	172					
Stoa	58.2	30.4	70	2	0	2	14	84	74.4	72	16.0	2.13	47.2	14.7	0.43	58.2	3	58.2	4.25	3	3	3	5	206					
Butte 86	58.3	32.7	85	1	0	6	22	72	72.0	72	15.3	1.87	49.3	13.4	0.39	57.3	2	57.3	3.50	3	3	4	5	187					
SD3249	61.0	30.3	66	4	3	8	23	66	69.9	58	15.7	1.84	49.3	14.9	0.37	56.5	3	56.5	4.50	3	3	3	5	196					
SD8108	59.9	30.3	74	2	8	17	31	44	57.5	50	15.3	1.80	43.7	13.9	0.34	55.8	3	55.8	5.75	3	5	5	5	196					
SD3219	60.1	30.3	70	3	2	3	19	76	71.2	68	14.9	2.05	49.3	13.2	0.39	53.2	2	53.2	6.50	2	4	6	4	172					
SD8119	59.4	32.7	85	1	0	4	25	71	67.6	85	15.5	2.02	48.1	14.0	0.41	57.6	3	57.6	3.50	3	3	3	4	183					
SD3310	60.1	33.1	84	1	6	26	25	43	58.6	44	15.7	1.89	44.5	15.0	0.30	56.5	2	56.5	4.50	3	3	3	4	192					
MN93413	55.5	30.9	62	4	1	11	26	62	66.6	65	14.5	2.09	48.4	12.4	0.44	56.9	3	56.9	3.50	2	3	6	5	181					
SBE0050	57.0	30.2	57	4	4	8	33	55	62.8	59	15.0	1.83	44.1	13.8	0.41	57.6	3	57.6	4.50	3	3	3	4	190					
MN94200	57.2	29.1	61	5	2	4	10	84	76.4	67	14.5	1.97	45.3	12.7	0.44	57.9	3	57.9	4.25	2	3	3	5	175					
MN94055	58.2	34.1	73	2	7	20	37	36	56.0	49	14.5	1.97	45.1	12.9	0.42	54.6	1	54.6	3.00	2	4	4	5	176					
SBF0402	58.6	32.9	76	3	6	17	40	37	57.1	61	15.2	1.93	47.2	13.9	0.37	55.0	2	55.0	5.00	3	3	5	5	193					
ND691	58.0	28.9	64	3	0	1	10	89	77.9	68	15.3	1.80	47.4	14.2	0.38	57.6	3	57.6	6.50	3	3	5	5	193					
ND694	61.5	32.8	83	1	6	20	27	47	60.0	72	16.2	1.81	48.6	14.7	0.38	57.3	2	58.2	3.75	3	5	3	5	198					
ND695	59.7	31.4	76	2	2	9	30	59	67.2	73	16.0	1.94	47.7	14.9	0.35	55.3	2	56.5	3.50	3	3	3	5	198					
ND704	60.6	32.0	79	2	1	4	25	70	68.3	70	15.4	1.77	44.4	14.0	0.38	55.8	2	57.2	5.00	3	3	4	4	190					
MT9433	59.1	31.4	67	4	1	2	13	84	73.8	88	15.9	2.07	50.0	14.2	0.47	57.9	2	60.1	3.00	3	3	3	5	211					

## FARGO, ND

LOCATION: St. Paul, MN

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	-----Rating-----					LOAF VOL (cc)	
					A	B	C	D		INDEX	PRO		ASH	PRO					ASH	C	C	C	G		T
MT9508	57.1	32.9	45	5	11	27	28	34	57.0	38	14.9	1.98	39.8	14.6	0.40	56.9	2	58.4	3.25	3	3	3	5	194	
B91-0228	59.4	32.5	57	4	2	4	19	75	70.6	73	15.0	2.12	44.9	13.5	0.47	56.5	2	57.2	6.50	3	5	3	5	186	
N93-0119	58.1	30.2	61	4	0	1	12	87	78.4	83	15.7	1.88	49.1	13.7	0.43	58.2	3	59.3	4.00	3	4	5	5	190	
N93-0136	58.8	29.6	66	2	2	5	26	67	64.8	57	13.6	1.86	52.3	12.1	0.39	54.3	2	55.6	4.50	2	4	5	4	173	
N93-0211	59.4	29.9	68	2	2	4	20	74	71.1	69	14.8	1.94	50.5	12.7	0.39	57.9	3	60.1	3.25	3	3	3	5	198	
Sharpshooter	61.2	33.2	80	1	5	18	38	39	57.0	64	15.2	1.85	52.1	14.2	0.37	57.6	2	59.3	3.50	2	3	4	5	181	
BZ987-331	56.3	37.8	88	0	22	39	25	14	44.9	44	14.4	1.98	47.4	12.8	0.36	57.6	3	59.3	7.00	3	4	3	5	196	
T801.93	58.2	35.7	72	2	0	10	38	52	62.6	76	15.4	1.88	48.6	13.6	0.60	59.0	3	60.2	6.00	3	3	4	5	221	
T1052	57.2	33.8	61	3	4	20	34	42	59.4	60	15.8	2.00	46.5	14.4	0.45	55.8	3	58.4	7.50	3	5	3	4	189	
NX95-5106	58.2	32.9	72	2	2	8	29	61	63.5	54	14.6	2.03	46.6	13.9	0.44	55.5	3	56.6	7.00	3	3	3	5	186	
SDM50005	59.5	30.5	70	1	4	12	35	49	60.6	57	15.0	1.95	53.7	13.9	0.44	55.0	2	56.5	4.50	3	3	3	5	190	
WA7802	55.4	33.3	64	4	8	22	36	34	54.0	46	14.6	2.01	46.4	13.9	0.38	57.6	4	59.3	5.50	3	3	3	5	194	
TX92U2317	54.4	30.1	47	5	4	8	28	60	62.2	53	14.6	1.87	42.9	12.6	0.51	57.3	3	58.8	5.00	3	3	5	5	188	
BW693	57.6	35.6	88	1	3	13	35	49	65.2	78	16.4	1.79	52.1	15.3	0.40	60.8	3	62.5	3.00	3	5	4	5	213	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

## RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BUCKY

BRIGHT WHITE

FINE

SILKY

6

3

0

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 9

LOCATION: Dickinson, ND										FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)			
					A	B	C		D	INDEX	PRO	ASH (14% mb)										EXT (%)	PRO	ASH (14 % mb)
Marquis	57.4	28.3	66	2	1	7	27	65	73.1	65	15.3	1.73	52.1	14.8	0.45	58.2	3	56.5	4.00	3	3	6	6	210
Chris	57.9	27.2	65	3	1	8	25	66	73.8	70	15.8	1.71	56.1	15.6	0.40	58.6	3	56.6	3.50	3	3	3	5	206
Era	56.5	27.1	55	4	2	6	24	68	68.4	69	14.2	1.82	58.7	13.6	0.47	55.8	2	54.1	5.00	3	3	6	4	204
Stoa	56.7	28.1	59	3	1	2	21	76	71.6	68	16.0	1.77	56.7	15.8	0.45	61.1	4	59.1	4.75	3	3	3	6	213
Butte 86	59.0	34.4	83	0	1	12	36	51	63.1	75	16.1	1.94	56.1	15.8	0.44	60.5	3	58.4	2.75	3	5	4	5	212
SD3249	60.6	29.9	70	2	3	14	29	54	65.1	67	16.5	1.76	57.1	16.3	0.41	59.6	3	57.5	4.50	3	4	3	6	210
SD8108	58.8	31.1	73	1	7	19	33	41	60.7	56	15.2	1.75	53.3	14.9	0.39	58.2	4	56.4	5.50	3	3	6	6	214
SD3219	59.2	29.7	66	4	1	2	20	77	74.3	65	15.0	1.84	56.4	14.1	0.45	56.5	3	54.4	6.00	3	3	3	4	193
SD8119	57.4	32.0	81	1	1	5	26	68	69.6	80	15.6	1.90	58.2	15.3	0.46	61.4	3	59.1	3.50	3	4	3	6	210
SD3310	59.3	34.1	85	1	8	26	24	42	60.4	58	17.1	1.87	56.0	16.9	0.39	58.6	3	56.7	3.00	3	3	3	5	208
MN93413	55.0	29.7	52	4	1	7	34	58	67.7	72	14.2	1.78	55.7	13.0	0.48	57.6	2	55.6	3.50	3	3	3	4	193
SBE0060	54.9	28.0	38	4	1	3	27	69	69.0	53	15.4	1.88	49.1	15.3	0.49	60.0	5	57.9	6.00	2	3	6	5	198
MN94200	58.0	30.1	73	2	0	4	14	82	73.7	73	15.5	1.80	55.1	15.1	0.48	60.0	4	57.9	4.50	3	3	4	4	210
MN94055	57.8	34.5	77	2	7	23	29	41	59.1	49	14.6	1.82	52.6	14.3	0.43	56.2	1	54.4	3.00	2	1	6	6	185
SBF0402	57.4	34.0	78	3	4	27	36	33	56.8	64	16.8	1.65	55.2	16.4	0.42	61.1	5	59.1	4.50	3	4	3	6	217
ND691	57.8	28.2	67	2	0	1	14	85	82.1	65	14.6	1.51	57.1	14.2	0.41	58.6	2	56.7	4.50	2	4	3	6	206
ND694	58.8	28.9	61	2	1	2	15	82	75.9	76	16.2	1.70	61.9	15.7	0.47	59.0	3	57.0	4.75	3	5	4	6	211
ND695	58.3	30.0	73	2	1	6	26	67	70.8	67	15.8	1.75	59.7	15.7	0.42	59.3	3	57.0	3.50	3	4	3	6	217
ND704	59.6	33.1	83	1	1	12	36	51	65.2	72	15.8	1.81	62.6	15.7	0.42	61.4	4	59.1	4.25	3	3	3	6	225
MT9433	57.0	32.9	73	1	1	4	24	71	66.8	79	15.9	1.76	62.7	15.2	0.49	60.3	3	58.4	3.25	3	5	4	6	212



## 1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 9 (cont)

## FARGO, ND

LOCATION: Dickinson, ND

LOCATION: Dickinson, ND																										
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C				LOAF VOL (cc)	
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)						Rating-----					
																					C	C	G	T		
MT9508	57.4	33.0	51	2	5	20	35	40	59.0	45	15.5	1.78	55.7	15.2	0.44	60.3	3	58.4	3.00	3	5	4	6	6	222	
B91-0228	59.5	36.1	69	1	1	10	39	50	62.8	72	16.2	1.90	57.0	16.2	0.52	59.3	4	57.0	6.50	3	3	3	6	6	218	
N93-0119	58.0	34.2	84	1	1	5	23	71	71.1	87	16.1	1.75	58.7	14.7	0.45	60.3	3	58.4	3.50	3	3	5	5	5	209	
N93-0136	57.8	27.7	57	4	2	8	22	68	70.5	63	14.9	1.76	60.0	14.4	0.48	57.6	3	55.6	4.50	3	4	3	5	5	207	
N93-0211	57.4	28.9	62	2	1	4	19	76	73.0	72	15.5	1.84	60.3	14.6	0.47	59.6	3	57.5	3.50	3	4	3	5	5	203	
Sharpshoote	54.8	39.5	75	2	0	5	24	71	69.6	99	15.8	2.01	44.9	14.7	0.71											
BZ987-331	55.0	33.7	73	3	17	32	29	22	47.3	38	15.1	1.89	50.5	14.7	0.43	62.5	6	60.4	6.00	3	3	4	5	5	232	
T801.93	57.0	38.5	86	1	2	16	40	42	59.4	80	15.5	1.84	53.1	14.5	0.58	60.5	4	58.4	6.00	3	3	3	6	6	212	
T1062	56.3	35.1	76	2	4	16	38	42	57.7	61	16.5	1.96	49.8	16.2	0.47	60.0	5	57.9	7.00	6	5	3	6	6	211	
NX95-5106	57.0	34.7	82	1	2	6	35	57	62.5	54	14.9	1.80	50.5	14.7	0.46	59.3	3	57.1	5.50	3	3	4	6	6	219	
SDM50005	57.0	32.0	72	4	7	27	35	31	52.2	49	15.4	2.00	54.3	15.3	0.45	57.9	3	55.9	3.25	3	4	5	5	5	192	
WA7802	56.3	34.3	73	2	6	22	42	30	53.9	54	14.5	1.81	57.3	13.9	0.42	57.3	3	55.2	4.50	3	3	4	5	5	212	
TX92U2317	56.2	31.0	53	3	3	11	35	51	61.3	56	14.2	1.79	54.7	13.2	0.45	56.2	2	54.4	4.00	2	3	5	5	5	200	
BW693	56.2	29.3	68	3	5	20	30	45	60.0	66	16.5	1.89	58.8	16.4	0.48	61.4	4	59.1	3.00	3	5	3	5	5	238	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

## RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BUCKY

BRIGHT WHITE

FINE

SILKY

0

3

6

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Rep 2

Table 10

LOCATION: Sidney, MT										FARGO, ND																
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C					LOAF VOL (cc)			
					A	B	C		D	INDEX	PRO	ASH (14% mb)						EXT (%)	PRO	ASH (14% mb)	C	C		C	G	T
Marquis	59.0	28.3	58	4	6	20	28	46	58.2	66	16.1	2.03	51.4	15.0	0.45	59.0	3	57.1	3.50	3	3	5	5	5	207	
Chris	60.1	26.2	36	9	5	14	27	54	61.3	70	16.4	1.91	52.9	15.7	0.41	58.6	3	56.6	3.50	3	3	4	5	5	204	
Era	58.9	28.2	51	5	4	14	26	56	62.3	60	15.4	1.96	53.3	13.6	0.46	55.5	3	53.5	5.00	2	3	3	5	5	185	
Stoa	58.4	27.2	36	5	3	7	23	67	66.5	69	15.6	1.89	54.9	14.4	0.44	60.3	3	58.2	4.50	3	3	3	5	5	216	
Butte 86	58.2	31.5	71	2	2	13	32	53	60.9	81	16.6	1.88	54.0	15.3	0.45	63.1	3	61.1	2.50	3	3	3	6	6	225	
SD3249	61.4	29.9	54	2	8	17	35	40	56.2	74	16.7	1.92	56.6	15.9	0.41	61.4	3	59.5	3.25	3	3	3	5	5	213	
SD8108	60.6	30.5	51	2	6	19	32	43	55.9	52	15.1	1.81	49.3	14.0	0.37	60.0	4	57.9	4.50	3	3	3	5	5	210	
SD3219	61.8	32.6	57	3	4	10	29	57	61.4	74	15.4	1.93	56.1	14.0	0.45	58.6	2	56.6	4.25	2	4	3	6	6	212	
SD8119	59.5	31.9	75	1	3	12	33	52	61.0	76	15.9	1.86	56.3	14.8	0.47	60.3	2	58.2	2.75	3	3	3	6	6	223	
SD3310	61.2	31.4	67	1	15	30	35	20	47.9	60	16.7	1.87	54.1	16.7	0.39	60.8	3	58.8	2.50	3	3	3	5	5	209	
MN93413	57.4	30.0	39	7	6	16	32	46	58.8	65	13.7	1.76	56.3	12.3	0.45	57.6	3	55.5	4.25	2	3	6	5	5	196	
SBE0050	59.2	28.4	31	9	3	14	28	55	62.6	56	14.8	1.84	49.3	14.1	0.46	58.2	3	56.3	5.50	3	5	3	5	5	210	
MN94200	59.7	29.0	49	4	1	6	22	71	69.1	67	15.3	1.84	54.0	13.9	0.43	57.9	3	56.0	4.75	3	5	5	5	5	198	
MN94055	60.2	33.4	73	2	7	22	35	36	54.1	53	15.0	1.80	48.1	14.7	0.41	56.2	1	54.4	3.00	2	3	5	5	5	188	
SBF0402	59.8	33.3	73	1	6	25	33	36	54.1	61	16.5	1.74	52.6	15.7	0.43	60.0	3	57.9	4.50	3	3	5	6	6	211	
ND691	60.6	28.2	43	6	3	9	18	70	67.5	62	14.7	1.77	55.5	14.4	0.44	59.3	3	57.1	5.50	3	3	3	6	6	208	
ND694	61.2	29.7	46	4	2	13	32	53	60.9	64	15.9	1.80	53.8	14.6	0.42	61.1	4	59.2	4.00	3	3	5	6	6	198	
ND695	62.1	31.1	55	3	4	12	32	52	59.9	68	15.1	1.78	51.2	14.3	0.37	57.6	2	55.2	4.00	3	4	3	6	6	201	
ND704	62.2	31.5	69	1	3	7	25	65	64.4	66	15.6	1.78	54.3	14.9	0.39	58.6	4	56.7	4.50	3	3	3	4	4	216	
MT9433	61.3	31.7	62	2	2	7	26	65	64.9	78	14.5	1.87	54.9	13.0	0.43	59.0	2	57.3	3.50	3	3	3	6	6	200	

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Rep 2

Table 10 (cont)

FARGO, ND

LOCATION: Sidney, MT

LOCATION: Staney, MI																														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS								NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	C VOL	LOAF VOL (cc)
					DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	MIX ABS	MIX PAT														
					A	B	C	D									INDEX													
MT9508	58.6	34.9	55	3	24	31	26	19	46.6	48	17.0	1.94	57.1	16.6	0.43	62.7	3	60.6	2.00	3	6	3	6	3	6	3	6	225		
B91-0228	62.0	32.9	58	2	4	15	28	53	59.7	68	16.3	1.92	59.2	15.2	0.46	59.3	3	57.3	5.00	3	5	3	6	3	6	3	6	200		
N93-0119	60.2	31.6	68	1	1	5	16	78	68.8	86	15.9	1.85	59.3	14.0	0.48	59.6	2	57.4	3.50	3	3	5	6	3	6	3	6	210		
N93-0136	61.6	28.7	51	5	3	11	23	63	64.0	50	14.2	1.76	59.7	13.0	0.42	54.3	2	52.5	5.00	2	3	3	4	3	4	3	4	177		
N93-0211	61.3	31.5	59	2	3	14	27	56	61.1	72	15.5	1.87	60.8	13.5	0.45	56.8	2	54.6	4.00	2	5	3	5	3	5	3	5	198		
Sharpshoote					0	0	0	0	0.0	0	Num	#Num!	Num																	
BZ987-331	57.2	39.0	80	2	32	37	19	12	41.0	44	16.0	1.93	52.1	15.6	0.47	61.8	5	60.0	5.50	3	3	3	5	3	5	3	5	227		
T801.93	59.9	37.2	76	1	9	24	31	36	53.9	66	15.6	1.90	57.2	14.0	0.53	60.3	4	58.4	5.50	3	5	3	5	3	5	3	5	218		
T1052	59.0	36.9	75	1	6	23	39	32	53.2	57	17.0	2.08	53.6	16.4	0.48	60.5	4	58.4	5.50	3	6	6	6	6	6	6	6	212		
NX95-5106	59.7	35.6	71	2	6	16	38	40	55.6	43	15.3	1.89	50.9	13.8	0.44	60.0	4	57.9	5.50	3	3	3	6	3	6	3	6	207		
SDM50005	60.5	32.5	66	3	9	23	31	37	53.1	52	15.3	1.78	58.6	14.7	0.45	58.6	3	56.7	3.00	3	3	3	5	3	5	3	5	197		
WA7802	59.1	33.8	62	2	12	29	30	29	50.6	53	15.6	1.73	62.1	14.2	0.39	59.6	3	57.4	4.50	3	3	3	5	3	5	3	5	214		
TX92U2317	58.1	33.4	55	4	5	23	32	40	55.8	53	14.9	1.84	55.2	13.5	0.44	57.9	2	56.1	4.00	3	3	5	5	3	5	3	5	210		
BW693	57.4	30.4	47	4	9	18	33	40	56.0	61	16.5	2.01	58.6	15.5	0.45	60.3	3	58.4	3.00	3	3	3	5	3	5	3	5	220		

DISTRIBUTION: A= % Soft

B= % Smtl-Soft

C= % Smtl-Hard

D= % Hard

RATINGS:		0			3			6		
		STICKY-WEAK		PLIABLE		ELASTIC		BUCKY		
DOUGH CHAR (DC):		YELLOW		GREY		DULL		BRIGHT WHITE		
CRUMB COLOR (CC):		IRREG, THICK		OPEN, THICK		COARSE		FINE		
CRUMB GRAIN (CG):		HARSH								
CRUMB TEXTURE (CT):										



1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 11

FARGO, ND

LOCATION: Williston, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating				LOAF VOL (cc)
					A	B	C		PRO	ASH (14% mb)		PRO	ASH (14 % mb)						C	C	G	T	
Marquis	56.8	28.9	58	4	15	23	33	29	50.3	68	16.4	1.74	54.0	15.8	0.42	58.0	2	56.1	3	5	3	4	216
Chris	55.4	25.3	45	9	13	26	29	32	50.6	69	16.8	1.70	55.0	16.1	0.38	58.2	3	56.4	3	3	3	4	208
Era	54.9	26.0	38	11	8	16	28	48	57.1	52	15.0	1.60	54.2	14.0	0.48	55.3	3	53.2	3	3	3	4	210
Stoa	56.6	26.8	49	5	5	10	30	55	61.6	64	16.8	1.61	53.5	15.8	0.41	60.0	3	57.9	3	3	3	5	218
Butte 86	57.7	33.6	78	4	7	27	38	28	52.2	71	17.4	1.90	55.9	16.6	0.43	60.8	3	58.6	3	4	3	5	204
SD3249	59.7	29.4	60	4	13	31	29	27	50.4	66	17.6	1.79	55.7	16.7	0.37	59.6	4	57.4	3	4	3	5	214
SD8108	57.2	29.9	56	5	27	36	21	16	41.7	55	16.4	1.69	48.3	16.0	0.33	58.2	4	56.4	3	3	3	4	213
SD3219	59.4	30.6	63	4	5	19	40	36	55.3	68	17.1	2.02	56.5	15.2	0.43	60.8	4	58.6	3	5	6	5	216
SD8119	56.8	31.3	72	4	11	19	35	35	54.1	69	17.5	1.78	53.8	17.1	0.40	62.5	3	60.2	3	4	3	5	224
SD3310	60.0	31.0	62	2	24	32	29	15	45.5	49	18.3	1.93	54.8	18.2	0.37	63.1	3	61.0	3	1	3	5	221
MN93413	54.2	29.8	45	9	8	23	30	39	56.0	66	15.6	1.69	59.2	14.6	0.44	59.6	3	57.4	3	5	4	4	211
SBE0050	56.1	26.4	49	10	4	14	31	51	61.5	60	17.2	1.76	53.6	16.7	0.44	61.1	4	59.1	3	3	3	4	240
MN94200	57.9	28.9	59	4	7	16	22	55	63.8	79	16.7	1.79	58.3	16.4	0.41	61.8	3	59.9	3	3	3	4	217
MN94055	56.5	33.7	69	4	32	26	17	25	45.1	55	16.6	1.86	52.6	16.2	0.41	59.0	2	57.0	2	3	3	4	215
SBF0402	57.8	34.2	75	3	23	32	20	25	47.1	54	18.1	1.93	58.4	18.0	0.41	63.7	5	61.6	3	4	3	5	228
ND691	56.1	25.6	37	11	4	14	28	54	62.5	68	16.2	1.57	59.2	15.2	0.44	62.5	4	60.2	3	1	3	5	210
ND694	59.2	25.4	47	10	5	11	25	59	66.1	67	16.8	1.82	56.7	16.6	0.36	61.4	4	59.1	3	5	4	5	220
ND695	59.0	29.1	53	6	9	23	31	37	56.2	58	16.7	1.67	54.0	16.0	0.36	59.6	3	57.4	3	3	5	5	215
ND704	59.5	30.3	70	4	4	21	36	39	57.9	65	17.0	1.72	59.7	16.7	0.35	61.8	4	59.8	3	3	3	5	216
MT9433	57.8	30.4	58	3	6	16	27	51	58.9	80	17.3	1.79	59.6	16.4	0.40	61.1	3	59.2	3	3	4	4	205

FARGO, ND

LOCATION: Williston, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14% mb)		MIX ABS PAT	MIX ABS PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	C LOAF VOL (cc)
					A	B	C	D		PRO	ASH	FLOUR EXT (%)	PRO	ASH (14% mb)										
MT9508	57.3	34.4	57	2	44	28	15	13	39.4	50	17.6	1.77	50.0	17.5	0.36	62.7	4	60.8	2.25	3	3	4	4	217
B91-0228	58.2	29.5	49	5	6	16	24	54	62.7	76	17.4	1.92	54.2	16.6	0.46	62.7	4	60.8	5.00	3	5	5	5	216
N93-0119	58.3	29.3	62	4	5	10	17	68	73.0	79	17.6	1.83	55.2	16.6	0.41	60.8	3	58.7	2.75	3	3	3	5	222
N93-0136	57.6	27.7	57	3	12	22	31	35	55.3	59	15.8	1.73	59.5	14.9	0.39	56.9	2	58.7	3.50	2	3	3	5	187
N93-0211	59.0	30.1	68	4	9	16	27	48	59.9	63	17.7	1.86	57.1	16.9	0.40	61.4	3	59.5	3.00	3	5	3	5	215
Sharpshooter	61.4	32.3	74	4	33	34	20	13	41.6	52	16.7	1.56	59.2	15.9	0.33	61.4	2	59.5	2.00	3	3	3	5	198
BZ987-331	55.8	37.7	78	2	54	22	10	14	35.9	48	17.3	1.79	51.7	17.1	0.42	66.1	6	64.1	5.50	3	3	3	5	214
T801.93	56.6	36.7	78	3	12	32	30	26	51.4	73	17.5	2.00	51.4	16.1	0.52	64.7	5	62.9	4.50	3	3	3	6	240
T1052	57.2	34.8	78	2	28	30	21	21	46.0	57	18.6	1.89	50.7	18.5	0.43	63.4	4	61.6	3.50	3	3	3	5	200
NX95-5106	57.4	34.8	73	4	15	32	25	28	50.2	48	16.5	2.00	50.7	15.8	0.39	63.1	4	61.0	4.50	3	5	3	5	205
SDM50005	57.9	32.6	72	4	30	31	23	16	41.8	47	17.0	1.67	55.2	16.9	0.39	60.5	3	58.2	2.75	3	5	3	5	208
WA7802	55.9	32.1	58	4	26	31	27	16	43.6	55	16.6	1.80	56.8	15.7	0.37	60.3	3	58.2	4.00	3	3	3	5	206
TX92U2317	56.2	29.7	53	7	9	29	35	27	51.7	50	16.0	1.62	54.2	15.6	0.42	59.6	2	57.5	3.50	3	3	3	5	196
BW693	55.8	28.3	53	6	13	33	31	23	48.6	58	17.0	1.82	56.1	16.3	0.41	63.1	3	61.0	3.00	3	5	3	5	217

DISTRIBUTION: A= % Soft		RATINGS:					
		0		3		6	
B= % Semi-Soft		STICKY-WEAK		ELASTIC		BUCKY	
C= % Semi-Hard		YELLOW		DULL		BRIGHT WHITE	
D= % Hard		IRREG, THICK		OPEN, THICK		FINE	
		HARSH		COARSE		SILKY	

## 1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 12

LOCATION: <i>Bozeman, MT</i>										FARGO, ND															
VARIETY		TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)		
						A	B	C		PRO (14% mb)	ASH (14 % mb)		PRO (14 % mb)	ASH (14 % mb)										Rating-----	
Marquis		60.5	36.7	77	0	9	26	37	28	51.7	63	14.6	1.67	53.1	14.2	0.38	58.2	2	56.3	3.00	2	3	5	4	188
Chris		59.7	34.3	90	0	9	29	38	24	50.3	68	15.6	1.69	55.0	15.2	0.35	59.0	2	57.1	2.50	2	3	5	4	198
Era		56.9	34.9	89	0	5	18	32	45	58.3	66	13.5	1.51	55.3	12.4	0.35	57.3	2	55.6	3.00	2	4	3	4	187
Stoa		59.9	38.1	94	0	1	11	41	47	59.4	73	14.6	1.56	57.5	13.7	0.33	59.6	2	57.7	3.00	2	4	3	4	203
Butte 86		60.3	40.2	96	0	3	20	43	34	54.9	73	14.6	1.47	57.3	13.9	0.34	60.8	3	58.6	2.50	2	4	3	4	185
SD3249		61.9	37.0	90	0	15	31	37	17	48.2	69	16.0	1.55	59.5	15.5	0.32	62.7	3	60.8	2.50	3	3	3	4	210
SD8108		61.0	41.4	94	0	25	41	25	9	42.0	60	14.0	1.50	52.3	13.4	0.30	59.3	2	57.1	3.00	3	3	3	5	186
SD3219		61.6	37.5	91	0	0	13	41	46	59.2	67	14.2	1.47	57.5	12.8	0.36	57.3	2	55.6	2.75	1	1	3	4	177
SD8119		58.6	38.9	96	0	3	22	43	32	54.5	70	14.9	1.66	57.9	13.8	0.36	58.6	2	56.7	2.00	2	4	5	4	188
SD3310		61.4	40.0	95	0	28	43	20	9	40.3	58	15.5	1.50	58.8	15.3	0.35	59.0	2	57.1	1.75	2	1	6	4	199
MN93413		60.2	42.2	97	0	8	35	40	17	48.3	68	12.3	1.29	57.7	10.8	0.35	55.8	2	54.0	2.50	2	4	5	4	170
SBE0050		60.4	39.6	96	0	6	22	40	32	53.9	63	13.5	1.39	57.7	12.6	0.37	57.3	2	55.6	2.50	2	3	3	4	186
MN94200		61.4	39.6	94	0	1	9	40	50	61.0	82	14.0	1.44	57.1	12.8	0.37	57.9	2	56.1	2.75	2	3	3	4	183
MN94055		60.2	41.6	94	0	16	35	34	15	46.4	55	13.3	1.55	53.1	12.4	0.35	55.0	1	53.2	2.00	1	1	3	4	167
SBF0402		60.9	42.8	95	0	12	39	34	15	46.5	62	15.1	1.40	57.3	14.3	0.33	59.3	3	57.1	3.50	2	3	3	4	198
ND691		59.7	34.6	88	0	2	11	34	53	60.5	70	13.6	1.31	60.7	12.3	0.35	58.6	2	56.7	3.25	1	1	5	4	195
ND694		62.5	37.3	94	0	2	18	42	38	56.3	74	15.0	1.49	60.1	14.5	0.34	59.6	2	57.7	2.50	2	5	3	5	186
ND695		61.6	38.7	92	0	6	23	37	34	53.8	64	15.1	1.47	55.7	14.1	0.32	59.6	2	57.7	3.00	2	3	3	5	191
ND704		61.8	40.6	96	0	4	26	44	26	52.1	71	14.3	1.39	58.7	13.9	0.34	58.6	2	56.6	3.00	2	3	4	4	192
MT9433		61.4	38.6	92	0	1	10	28	61	62.3	88	14.9	1.56	57.8	13.9	0.36	60.8	2	58.7	2.25	2	5	3	5	196



LOCATION: Bozeman, MT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		MIX ABS PAT	BAKE ABS	MIX TIME (min)	-----Rating-----					LOAF VOL (cc)		
					DISTRIBUTION					PRO	ASH (14% mb)	FLOUR EXT (%)	FLOUR				D C	C G	C T					
					A	B	C	D					INDEX							PRO	ASH (14 % mb)			
MT9508	62.0	44.7	92	0	43	31	19	7	37.2	51	15.2	1.48	52.9	14.8	0.32	60.5	2	58.3	1.75	3	5	3	5	195
B91-0228	62.6	44.8	95	0	2	27	37	34	54.6	75	15.0	1.60	54.4	14.2	0.38	60.0	3	57.9	3.50	3	3	3	5	194
N93-0119	61.0	39.5	96	0	1	14	42	43	58.8	85	14.8	1.45	55.1	13.1	0.39	58.6	2	56.6	2.50	2	3	3	4	187
N93-0136	61.0	35.0	88	0	7	28	41	24	51.0	53	12.6	1.41	55.7	11.3	0.31	54.6	2	52.9	4.00	2	4	6	4	168
N93-0211	61.8	38.3	95	0	3	16	38	43	56.2	64	14.1	1.50	54.5	13.2	0.33	58.2	2	56.4	2.50	2	1	3	5	188
Sharpshoote	62.0	40.7	95	0	18	41	30	11	44.0	60	15.4	1.51	53.3	14.8	0.31	61.4	2	59.7	2.50	3	3	3	5	204
BZ987-331	59.9	49.6	92	0	35	45	14	6	36.8	50	13.7	1.41	48.8	13.4	0.35	64.4	4	62.5	3.50	3	1	3	5	202
T80193	62.1	51.8	98	0	10	40	37	13	47.0	74	14.4	1.49	51.4	13.0	0.45	63.4	3	61.6	3.25	3	4	3	5	213
T1052	61.0	46.0	97	0	14	43	31	12	44.9	67	15.2	1.64	54.0	14.9	0.36	62.5	3	60.4	3.75	3	5	4	5	200
NX95-5106	61.5	44.4	98	0	5	31	44	20	50.1	59	13.8	1.52	55.2	12.5	0.33	60.5	3	58.3	3.50	3	4	4	4	185
SDM50005	61.6	43.5	95	0	15	35	34	16	46.4	61	14.6	1.53	55.7	14.2	0.35	58.2	2	56.4	2.25	2	4	3	4	189
WA7802	61.3	45.9	97	0	17	39	30	14	45.4	56	13.6	1.40	54.5	12.3	0.29	58.6	2	56.6	3.00	2	4	3	4	185
TX92U2317	58.6	38.3	84	0	3	15	41	41	56.8	60	12.8	1.51	50.7	11.7	0.39	56.5	2	54.3	3.25	2	4	4	4	177
BW693	59.5	42.1	97	0	25	38	26	11	42.4	71	15.8	1.54	55.5	15.0	0.34	60.3	2	58.3	1.75	2	3	5	5	206

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

FINE

SILKY

BUCKY

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Rep 1

Table 13

LOCATION: *Havre, MT*

FARGO, ND

LOCATION: Havre, MI																													
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS						NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	Rating-----					C VOL (cc)
					DISTRIBUTION			HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	C	G	T	C												
					A	B	C											D						INDEX					
CI3651	57.3	27.7	53	5	4	13	38	45	58.5	73	16.2	1.53	55.4	15.4	0.40	58.2	3	56.5	3	3.50	3	3	3	6	3	3	6	195	
CI13751	56.8	24.5	33	5	2	12	34	52	59.6	70	16.1	1.54	57.5	15.4	0.35	57.9	3	55.8	3	4.00	3	4	3	6	3	4	3	6	188
CI13986	56.6	26.5	58	4	2	6	23	69	64.6	63	14.7	1.60	53.3	13.6	0.41	57.3	3	55.0	3	5.00	3	3	3	5	5	3	5	5	187
ND582	56.6	26.7	23	5	3	3	22	72	66.4	55	15.8	1.55	59.9	15.3	0.36	60.0	4	57.9	4	5.00	3	3	3	3	3	3	3	5	198
ND597	58.2	29.8	47	3	2	12	28	58	61.0	65	14.9	1.39	58.2	13.9	0.36	58.6	3	56.8	3	4.00	3	3	3	3	3	3	3	5	189
SD3249	59.8	28.7	39	2	6	22	37	35	54.4	57	15.6	1.50	59.9	15.3	0.38	59.6	4	57.4	4	4.00	3	3	3	3	3	3	3	6	203
SD8108	59.1	30.5	51	2	16	37	27	20	46.3	43	14.1	1.37	50.7	13.8	0.31	55.3	4	53.2	4	7.25	6	3	6	3	6	3	6	5	178
SD3219	59.3	27.6	24	7	2	8	14	76	67.7	60	14.6	1.44	59.2	13.6	0.42	55.5	3	53.6	3	7.00	3	4	3	4	3	4	3	5	178
SD8119	57.3	29.5	51	2	2	12	24	62	63.0	58	14.7	1.38	59.7	14.1	0.41	59.3	3	57.2	3	4.50	3	4	3	4	3	4	3	5	181
SD3310	58.9	30.2	39	4	21	39	30	10	42.8	37	15.2	1.52	52.6	15.0	0.35	59.3	3	57.2	3	4.00	3	1	4	3	1	4	5	5	186
MN93413	55.5	28.1	34	4	1	7	25	67	64.3	59	14.6	1.48	56.8	13.3	0.41	58.6	3	56.8	3	4.00	3	3	4	4	3	4	6	6	186
SBE0050	57.3	28.0	15	4	1	5	26	68	63.8	42	13.9	1.37	45.5	13.0	0.37	55.8	4	54.3	4	7.00	3	6	6	6	5	6	6	5	175
MN94200	56.2	25.2	20	10	1	3	9	87	73.8	75	15.1	1.56	49.1	13.9	0.42	58.6	4	56.8	4	5.50	3	3	3	3	3	3	6	6	180
MN94055	57.3	30.3	45	3	7	23	37	33	52.3	64	15.4	1.54	50.2	15.0	0.29	57.6	3	55.4	3	3.00	3	4	5	4	5	4	5	5	185
SBF0402	56.6	28.5	35	5	3	18	38	41	56.2	52	15.6	1.57	57.7	15.4	0.41	61.1	5	59.2	5	7.00	3	3	4	3	4	3	4	5	195
ND691	55.5	23.5	9	11	4	7	19	70	64.8	61	15.8	1.45	62.4	15.2	0.42	61.8	4	59.8	4	5.50	3	4	3	4	3	4	3	6	200
ND694	59.5	29.4	40	4	5	11	33	51	59.5	68	15.0	1.60	60.6	14.3	0.39	59.6	3	57.5	3	4.50	3	5	4	3	5	4	6	6	208
ND695	59.6	30.2	61	2	5	14	35	46	57.6	58	15.5	1.35	57.7	14.7	0.36	59.6	3	57.5	3	3.50	3	4	3	4	3	4	3	6	200
ND704	58.6	28.3	35	5	3	8	23	66	63.8	59	14.4	1.52	56.6	13.6	0.41	58.2	3	56.2	3	5.00	3	4	5	4	5	4	5	5	198
MT9433	59.5	33.5	72	2	3	18	44	35	55.1	79	16.0	1.48	64.5	15.0	0.39	60.5	3	58.3	3	3.00	3	3	5	3	5	3	5	5	191

LOCATION: *Havre, MT*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C				LOAF VOL (cc)				
					DISTRIBUTION					PRO	ASH (14% mb)	PRO	ASH (14 % mb)		PRO	ASH (14 % mb)						PRO	Rating-----							
					A	B	C	D																					INDEX	
MT9508	58.7	32.9	38	1	12	27	38	23	49.4	55	14.9	1.37	56.1	14.8	0.37	60.5	3	58.3	2.50	3	2	3	6	6	191					
B91-0228	61.4	37.1	54	1	1	16	45	38	56.6	67	15.7	1.51	56.1	15.1	0.40	59.0	3	57.1	5.75	3	5	3	5	5	187					
N93-0119	57.3	27.1	42	4	1	4	18	77	67.3	81	15.2	1.59	58.7	13.6	0.43	59.3	3	57.1	5.25	3	3	3	5	5	195					
N93-0136	58.2	28.5	37	3	5	14	36	45	58.1	59	14.2	1.62	61.6	13.2	0.39	55.8	3	54.4	4.50	3	4	5	5	5	172					
N93-0211	59.2	28.9	45	5	4	11	27	58	61.4	75	15.1	1.57	60.3	13.7	0.40	59.3	3	57.1	4.50	3	4	3	5	5	187					
FA994601	60.7	30.7	48	3	5	16	40	39	55.7	48	14.8	1.40	55.7	14.1	0.35	59.3	3	57.1	3.50	3	3	3	5	5	180					
BZ987-31	55.6	31.6	52	3	5	27	41	27	52.0	46	14.8	1.50	51.2	14.4	0.36	62.5	5	60.5	7.50	3	3	3	6	6	203					
T801-93	58.6	38.6	78	1	3	17	44	36	55.3	67	15.1	1.49	55.6	13.8	0.44	60.5	4	58.3	7.00	3	3	5	6	6	191					
T1052	56.6	33.9	44	1	4	15	36	45	57.2	59	15.9	1.60	55.5	15.5	0.40	60.0	4	57.9	7.00	6	5	3	6	6	190					
NX955106	57.0	30.7	48	1	3	7	30	60	61.5	51	15.6	1.54	49.5	15.1	0.39	59.6	5	57.5	8.50	3	4	5	6	6	190					
SDM50005	56.8	30.2	56	4	13	23	42	22	49.6	58	15.6	1.52	55.5	15.5	0.39	60.3	3	58.3	3.50	3	3	3	6	6	196					
WA7802	57.0	32.6	51	2	7	21	38	34	53.1	52	15.1	1.59	54.4	14.5	0.35	59.6	3	57.5	5.50	3	3	3	6	6	194					
TX92U231	55.0	28.4	15	6	5	9	32	54	59.3	52	15.4	1.64	47.9	14.7	0.39	59.0	3	57.1	4.00	3	3	3	6	6	200					
BW693	57.3	30.5	56	2	13	29	36	22	48.8	65	15.4	1.47	55.9	14.9	0.37	60.5	4	58.3	3.75	3	4	4	6	6	200					

DISTRIBUTION: A= % Soft												
B= % Semi-Soft												
C= % Semi-Hard												
D= % Hard												
RATINGS:												
DOUGH CHAR (DC):												
CRUMB COLOR (CC):												
CRUMB GRAIN (CG):												
CRUMB TEXTURE (CT):												
0												
3												
6												
STICKY-WEAK				PLIABLE				ELASTIC				BUCKY
YELLOW				GREY				DULL				CREAMY
IRREG, THICK				OPEN, THICK				FINE				SILKY
HARSH				COARSE								



1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Rep 2

Table 13

LOCATION: Havre, MT

FARGO, ND

LOCATION, <i>Harpe, MI</i>																										
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	Rating-----					C T	VOL (cc)
					A	B	C		D	INDEX	PRO	ASH (14% mb)	EXT (%)	PRO						ASH (14 % mb)	C	C	C	C		
CI3651	58.6	27.8	60	3	4	17	34	45	58.1	75	15.9	1.55	53.5	14.9	0.39	57.3	2	55.0	4.00	3	3	5	5	5	187	
CI13761	57.9	26.1	42	5	7	15	30	48	57.8	71	14.5	1.52	54.3	13.7	0.37	56.2	2	54.4	4.50	2	3	5	5	5	178	
CI13986	56.6	26.2	25	8	1	8	19	72	66.8	65	13.8	1.59	50.9	12.5	0.42	54.6	2	52.8	6.50	6	3	3	2	2	165	
ND582	58.2	27.9	45	4	3	11	23	63	62.8	61	14.7	1.47	53.3	13.6	0.37	57.9	4	55.9	6.00	6	3	5	5	5	187	
ND597	58.4	30.6	55	2	1	12	32	55	60.9	68	14.9	1.40	55.6	13.6	0.36	58.2	3	56.3	5.00	3	3	3	6	6	185	
SD3249	61.3	30.2	50	4	12	24	33	31	52.0	66	14.1	1.55	56.2	13.1	0.36	59.3	3	57.0	4.50	3	3	5	6	6	177	
SD8108	58.7	29.6	45	2	14	30	39	17	47.9	40	13.8	1.42	47.2	13.4	0.32	56.5	4	54.4	7.50	6	3	5	5	5	172	
SD3219	61.3	31.1	45	4	3	9	21	67	64.0	67	14.0	1.43	57.5	12.4	0.38	56.2	3	54.4	6.75	2	3	5	5	5	174	
SD8119	57.5	30.1	47	2	5	9	32	54	59.4	59	14.1	1.50	60.7	13.0	0.40	59.3	3	57.0	4.50	3	3	3	5	5	169	
SD3310	59.4	28.6	44	3	11	23	38	28	50.7	36	13.5	1.37	53.1	13.3	0.36	58.2	2	56.3	4.50	3	3	3	5	5	182	
MN93413	55.2	28.4	31	5	3	7	30	60	62.8	60	14.3	1.40	56.3	13.0	0.42	59.3	3	57.0	4.25	3	3	6	5	5	177	
SBE0050	56.2	27.9	15	7	3	7	32	58	61.2	47	14.2	1.45	48.6	13.2	0.37	57.6	4	55.7	7.00	6	3	3	5	5	185	
MN94200	57.0	26.6	44	6	1	3	15	81	71.4	67	14.6	1.52	50.7	13.1	0.41	58.2	3	56.3	5.50	3	5	6	6	6	180	
MN94055	58.1	31.8	53	2	10	28	31	31	51.6	61	14.4	1.46	54.3	13.8	0.37	57.6	2	55.7	3.00	2	4	3	6	6	186	
SBF0402	57.4	29.8	44	3	6	16	32	46	56.7	51	14.8	1.49	53.3	14.6	0.39	59.0	4	57.0	7.00	6	3	5	5	5	184	
ND691	56.0	25.6	16	8	5	10	27	58	61.5	65	14.7	1.41	58.8	14.2	0.40	59.3	4	57.0	5.50	6	3	3	6	6	198	
ND694	58.2	27.8	40	4	3	7	20	70	64.8	59	15.1	1.32	54.0	14.2	0.38	57.9	3	55.9	4.50	3	3	5	5	5	191	
ND695	60.1	33.3	71	2	13	28	37	22	48.9	51	14.5	1.33	51.4	13.3	0.35	60.0	3	57.8	3.00	3	3	4	5	5	196	
ND704	58.2	28.4	37	7	2	7	20	71	65.3	53	14.4	1.43	54.0	13.4	0.38	57.6	3	55.6	5.00	3	3	3	5	5	192	
MT9433	59.5	33.2	72	2	3	11	42	44	58.1	91	15.9	1.41	60.5	14.7	0.36	59.0	3	57.0	3.00	3	3	4	5	5	191	

LOCATION: *Havre, MT*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					A	B	C		D	INDEX	PRO	ASH	PRO	ASH										
MT9508	59.5	36.1	48	1	9	28	44	19	48.6	44	14.2	1.42	53.8	13.6	0.35	57.3	2	55.2	3.50	2	3	6	5	190
B91-0228	61.0	36.9	71	0	2	8	41	49	59.3	68	15.1	1.48	54.7	14.1	0.40	59.0	4	57.0	5.50	6	6	3	5	178
N93-0119	57.7	28.0	37	4	2	3	16	79	68.6	84	14.5	1.61	54.9	12.4	0.42	58.2	3	56.5	5.00	3	3	3	5	187
N93-0136	57.8	29.4	37	5	7	12	25	56	58.4	64	13.8	1.39	56.4	12.8	0.38	55.8	3	53.8	4.00	3	3	5	5	186
N93-0211	58.6	28.4	39	4	3	8	28	61	62.8	63	15.5	1.59	57.7	14.0	0.39	59.6	3	57.6	4.50	3	5	5	6	181
FA994601	61.0	32.5	54	2	9	21	35	35	52.8	56	13.5	1.39	55.9	13.1	0.35	58.2	3	56.5	3.50	3	3	5	6	186
BZ987-31	57.0	35.5	66	2	10	33	38	19	48.2	36	13.8	1.46	51.9	12.9	0.36	57.6	4	55.6	7.50	3	3	3	6	190
T80193	59.0	37.3	78	2	1	13	50	36	56.8	70	14.5	1.50	53.7	12.9	0.43	59.3	3	57.0	6.50	3	3	3	6	190
T1052	57.2	32.4	49	3	3	11	34	52	59.5	57	15.6	1.58	53.6	14.9	0.41	58.6	3	56.7	7.00	3	3	3	6	187
NX955106	56.8	30.3	54	2	1	9	28	62	62.0	50	14.6	1.51	49.3	14.0	0.38	59.3	4	57.0	7.50	3	3	3	6	191
SDM50005	57.8	30.7	43	4	5	17	40	38	54.8	45	15.0	1.48	54.8	14.4	0.39	59.3	3	57.0	3.50	3	3	4	6	195
WA7802	56.8	34.7	66	3	7	27	40	26	51.4	53	14.6	1.48	54.8	13.9	0.35	59.0	3	57.0	5.00	3	4	3	6	202
TX922U231	56.5	28.8	15	9	5	10	29	56	60.2	52	14.8	1.54	47.9	13.4	0.41	57.6	2	55.6	4.50	3	3	3	6	208
BW693	57.8	31.2	64	2	6	22	42	30	53.3	68	15.0	1.40	57.8	14.2	0.35	57.9	3	56.0	3.50	3	3	6	6	186

DISTRIBUTION: A= % Soft			0			3			6		
B= % Semi-Soft			STICKY-WEAK			ELASTIC			BUCKY		
C= % Semi-Hard			YELLOW			DULL			BRIGHT WHITE		
D= % Hard			IRREG, THICK			OPEN, THICK			FINE		
			HARSH			COARSE			SILKY		
			CRUMB TEXTURE (CT):								
			CRUMB GRAIN (CG):								
			CRUMB COLOR (CC):								
			DOUGH CHAR (DC):								
			RATINGS:								
			PLIABLE			GREY					
			STICKY-WEAK			ELASTIC					
			CRUMB COLOR (CC):			DULL					
			CRUMB GRAIN (CG):			OPEN, THICK					
			CRUMB TEXTURE (CT):			COARSE					

## 1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table 14

LOCATION: Pullman, WA FARGO, ND

LOCATION: Putnam, Pa																											
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	Rating-----					C T	VOL (cc)
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)						C	C	C	G			
Marquis	60.7	29.5	73	1	1	7	22	70	67.8	69	12.2	1.49	51.2	11.0	0.38	55.0	2	55.0	3.50	1	3	6	2	2	145		
Chris	61.4	27.2	49	4	2	3	23	72	70.1	70	11.4	1.52	48.6	10.4	0.37	51.6	2	51.6	4.50	1	4	6	2	2	136		
Era	60.9	27.0	52	4	2	4	18	76	68.8	64	10.4	1.48	48.6	8.3	0.41	48.5	1	50.3	6.50	1	1	6	1	1	120		
Stoa	62.2	30.2	64	4	1	3	21	75	71.4	67	11.2	1.41	49.8	9.6	0.33	53.2	2	54.2	4.50	1	3	6	4	4	141		
Butte 86	62.0	32.7	72	1	1	5	24	70	71.3	67	11.1	1.49	49.8	9.0	0.35	53.2	2	54.2	4.25	1	1	3	1	1	133		
SD3249	57.5	28.3	42	2	1	3	21	75	71.2	65	11.2	1.42	49.3	10.4	0.34	53.2	2	54.2	4.75	1	1	3	1	1	130		
SD8108	62.6	32.3	64	1	4	14	37	45	57.8	45	10.9	1.33	45.8	9.4	0.33	50.2	1	52.3	7.00	1	3	3	4	4	141		
SD3219	63.8	31.3	65	1	2	12	31	55	61.3	72	9.6	1.41	47.4	7.8	0.36	49.6	1	53.0	6.50	1	1	6	1	1	122		
SD8119	61.3	30.4	66	0	1	3	25	71	65.3	69	10.9	1.45	50.7	8.9	0.37	52.2	1	56.4	4.00	1	1	6	4	4	138		
SD3310	63.6	30.8	69	0	3	13	31	53	63.4	57	10.5	1.50	46.9	9.9	0.35	52.6	2	56.7	4.00	1	4	3	5	5	148		
MN93413	59.9	29.7	52	4	4	14	38	44	56.8	63	9.4	1.30	51.4	7.6	0.39	48.9	1	52.9	5.00	1	4	3	1	1	134		
SBE0050	61.4	28.3	40	5	0	4	29	67	66.0	60	9.8	1.39	50.0	8.3	0.37	49.6	1	53.5	8.50	1	1	6	1	1	119		
MN94200	61.0	27.6	53	2	2	3	13	82	69.4	75	10.4	1.43	47.0	8.3	0.37	51.3	1	55.0	5.00	1	4	6	1	1	137		
MN94055	61.6	32.0	60	2	1	12	30	57	61.7	71	10.5	1.42	51.7	9.2	0.34	51.6	1	55.6	3.25	1	1	3	4	4	134		
SBF0402	62.2	33.2	70	1	4	19	42	35	54.7	56	10.8	1.42	53.8	9.3	0.33	50.8	2	54.7	6.50	1	4	6	2	2	139		
ND691	62.1	28.1	54	2	1	3	19	77	67.9	76	10.4	1.31	53.5	9.1	0.34	52.2	2	56.4	5.50	1	4	3	1	1	138		
ND694	62.6	28.4	63	2	1	3	19	77	69.5	68	11.2	1.41	52.4	9.2	0.36	51.9	2	55.8	4.75	1	4	5	2	2	144		
ND695	61.6	30.8	65	4	1	9	31	59	62.8	61	10.5	1.38	50.0	9.6	0.35	50.2	1	54.2	4.00	1	4	5	2	2	138		
ND704	61.6	27.1	60	3	1	5	27	67	65.7	57	11.4	1.43	52.6	9.6	0.34	52.9	2	56.7	4.50	1	3	3	4	4	152		
MT9433	61.7	31.7	66	2	1	3	25	71	66.6	72	11.9	1.54	53.1	10.1	0.39	53.8	2	57.9	4.00	2	3	3	5	5	165		



## FARGO, ND

LOCATION: Pullman, WA

LOCATION: Putnam, PA																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			HARD- NESS	WHEAT (14% mb)		FLOUR (%)		FLOUR (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating-----				
					A	B	C		D	INDEX	PRO	ASH	FLOUR EXT	PRO						ASH	C	C	C	T
MT9508	62.0	32.0	32	5	3	20	44	33	55.2	60	11.8	1.50	54.6	10.9	0.32	54.6	2	58.6	2.50	2	4	5	5	175
B91-0228	63.0	32.0	48	5	1	5	21	73	67.4	81	11.5	1.72	50.2	10.3	0.42	55.3	3	59.1	5.00	2	3	3	5	152
N93-0119	61.6	29.5	63	2	1	1	11	87	71.4	81	10.3	1.36	50.2	8.1	0.38	51.3	1	55.3	5.00	1	1	6	1	124
N93-0136	62.6	30.8	67	2	3	9	28	60	62.3	65	10.1	1.38	51.7	8.5	0.33	49.6	1	53.4	6.00	1	1	6	1	128
N93-0211	61.0	29.0	57	2	1	1	12	86	72.2	74	11.2	1.45	50.7	9.1	0.39	53.2	2	57.2	3.50	1	4	5	4	142
Sharpshooter	63.9	31.7	66	1	3	9	33	55	61.3	52	11.1	1.33	50.5	9.9	0.31	53.2	2	57.2	4.50	1	3	3	5	146
BZ987-331	60.9	36.6	87	0	2	15	51	32	54.8	48	9.8	1.39	46.7	8.5	0.34	50.3	1	54.3	6.00	1	1	3	2	132
T801.93	61.8	36.4	75	0	1	5	29	65	62.3	82	9.7	1.52	48.6	8.1	0.43	51.3	1	55.3	8.00	1	3	5	2	140
T1052	59.5	31.0	44	5	2	9	28	61	63.0	60	11.1	1.49	49.3	9.5	0.39	52.6	2	56.7	6.50	2	3	5	5	166
NX95-5106	61.7	34.2	61	3	1	9	31	59	61.2	60	10.2	1.35	48.6	8.8	0.36	51.6	1	55.5	5.00	1	4	3	4	138
SDM50005	61.0	30.0	64	2	0	4	33	63	64.6	65	10.8	1.50	49.8	9.4	0.36	51.3	1	55.3	4.50	1	3	3	4	155
WA7802	60.2	32.1	70	1	2	9	32	57	61.2	61	10.3	1.38	47.2	8.9	0.34	51.3	1	55.3	5.00	1	4	3	4	152
TX92U2317	58.6	28.6	30	8	0	5	22	73	67.5	54	10.8	1.54	47.1	8.8	0.39	49.9	1	53.9	7.00	1	4	3	4	142
BW693	60.9	32.8	76	1	0	8	32	60	64.6	65	11.3	1.60	48.6	9.8	0.37	52.2	2	56.2	4.50	1	4	6	4	142

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

## RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BUCKY

BRIGHT WHITE

FINE

SILKY

3

0

6

## 1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LABTable of URN Averages:  
Northeast RegionREGION: *Northeast*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	SKWCS		NIR	WHEAT		FLOUR		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	T	LOAF VOL (cc)
			HARDNESS	INDEX		PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	C									
Std. Butte 86	58.5	32.0	61.3		65.8	15.2	1.72	56.3	14.5	0.40	2.8	57.8	3.19	3.0	3.5	3.8	5.0		201.5	
Marquis	<u>58.6</u>	29.3	<u>66.3</u>		<u>66.9</u>	14.7	1.81	51.0	13.8	0.46	2.3	56.0	3.19	2.5	3.3	3.5	4.8		189.5	
Chris	58.1	26.8	<u>67.8</u>		<u>68.4</u>	<u>15.3</u>	1.73	54.3	<u>14.9</u>	0.42	2.8	56.8	3.25	2.8	3.5	<u>4.0</u>	5.0		198.0	
Era	57.7	26.4	<u>68.3</u>		<u>66.0</u>	13.9	1.75	<u>59.3</u>	12.8	0.46	2.3	53.4	3.75	2.3	<u>3.8</u>	<u>4.5</u>	4.5		190.5	
Stoa	57.0	28.3	<u>69.0</u>		<u>67.2</u>	15.1	1.81	<u>57.7</u>	14.5	0.43	<u>3.5</u>	<u>58.1</u>	3.63	3.0	<u>3.8</u>	3.8	<u>5.3</u>		198.5	
SD3249	<u>61.8</u>	29.7	<u>63.6</u>		61.6	15.2	1.76	<u>58.4</u>	<u>14.5</u>	<u>0.37</u>	<u>3.5</u>	56.7	4.13	2.8	3.5	3.8	<u>5.3</u>		<u>204.8</u>	
SD8108	<u>60.0</u>	29.8	58.8		55.3	14.5	<u>1.71</u>	51.8	13.7	<u>0.36</u>	<u>3.5</u>	55.0	5.00	3.0	<u>4.0</u>	3.5	4.8		200.8	
SD3219	<u>60.6</u>	29.4	<u>70.9</u>		64.1	14.5	<u>1.71</u>	55.6	13.4	0.41	<u>3.0</u>	55.9	4.44	2.8	3.0	3.5	5.0		197.3	
SD8119	<u>58.6</u>	30.9	<u>64.5</u>		<u>74.3</u>	14.9	1.74	<u>57.6</u>	14.1	0.43	2.8	56.9	3.56	3.0	3.0	<u>4.3</u>	5.0		200.3	
SD3310	<u>60.3</u>	30.7	56.8		53.7	<u>15.5</u>	<u>1.69</u>	<u>58.1</u>	<u>15.1</u>	<u>0.36</u>	2.5	57.4	3.00	2.8	3.0	<u>4.5</u>	5.0		<u>207.8</u>	
MN93413	<u>59.1</u>	31.0	<u>62.9</u>		<u>66.9</u>	13.6	<u>1.67</u>	55.8	12.4	0.43	2.3	54.5	4.13	2.5	3.0	3.0	4.8		189.5	
SBE0050	<u>59.0</u>	29.3	<u>64.6</u>		58.1	14.4	1.74	<u>56.4</u>	13.5	0.44	2.8	55.1	4.56	3.0	<u>4.3</u>	3.3	4.5		<u>204.3</u>	
MN94200	<u>58.8</u>	28.3	<u>67.7</u>		63.6	14.3	<u>1.67</u>	54.7	13.4	0.41	2.8	55.9	3.94	2.8	<u>3.8</u>	3.0	4.8		194.5	
MN94055	<u>59.5</u>	31.6	60.0		53.7	14.3	<u>1.66</u>	51.2	13.6	<u>0.39</u>	2.0	53.6	2.69	2.5	2.5	<u>4.5</u>	4.3		184.0	
SBF0402	<u>59.2</u>	31.3	60.1		60.6	15.1	<u>1.65</u>	56.2	<u>14.5</u>	<u>0.38</u>	<u>3.3</u>	55.7	4.81	2.5	3.5	3.3	4.8		199.0	
ND691	57.9	27.5	<u>76.3</u>		<u>69.1</u>	14.5	<u>1.61</u>	56.2	13.8	0.42	<u>3.5</u>	55.7	5.00	<u>3.8</u>	3.0	3.5	<u>5.3</u>		199.8	
ND694	<u>60.4</u>	29.6	<u>69.0</u>		64.1	<u>15.5</u>	<u>1.68</u>	<u>57.7</u>	<u>14.8</u>	<u>0.36</u>	<u>3.3</u>	56.0	3.81	<u>3.8</u>	<u>4.5</u>	3.0	5.0		200.3	
ND695	<u>58.9</u>	29.8	<u>65.9</u>		60.8	<u>15.4</u>	<u>1.67</u>	<u>57.1</u>	<u>14.8</u>	<u>0.37</u>	2.8	56.3	3.31	2.8	2.8	3.5	<u>5.5</u>		199.5	
ND704	<u>60.4</u>	29.9	<u>67.9</u>		<u>73.1</u>	14.9	<u>1.63</u>	<u>61.2</u>	14.3	<u>0.36</u>	<u>3.0</u>	55.9	3.94	2.8	2.5	3.0	4.8		195.3	

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table of URN Averages:  
Northeast Region

FARGO, ND

REGION: *Northeast*

VARIETY	TW (lb/bu)	KWT (gr)	SKWCS		NIR	WHEAT		FLOUR		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
			HARDNESS INDEX	NESS		PRO	ASH (14% mb)	EXT (%)	PRO (14 % mb)	ASH (14 % mb)									
MT9433	57.8	29.5	70.6		76.0	15.2	1.78	59.4	14.2	0.43	3.0	56.5	3.06	2.8	3.0	4.0	5.3	194.0	
MT9508	57.6	30.1	54.1		44.3	14.6	1.75	49.1	14.4	0.38	2.3	56.3	2.56	2.5	4.5	4.3	5.0	202.3	
B91-0228	59.8	30.5	68.5		67.3	15.1	1.85	54.8	14.2	0.43	3.3	55.9	5.13	3.5	4.5	3.5	5.3	204.8	
N93-0119	59.6	29.9	78.8		82.7	15.2	1.73	54.6	13.9	0.42	2.5	56.2	3.38	2.5	2.8	3.8	5.3	198.8	
N93-0136	59.0	29.1	64.0		59.5	13.8	1.70	58.3	12.8	0.39	2.0	52.4	3.75	2.3	2.3	3.8	4.5	184.0	
N93-0211	58.6	28.3	71.0		62.0	15.4	1.72	55.2	14.4	0.41	2.5	55.3	3.38	3.0	3.5	4.5	5.0	199.3	
Sharpshooter	60.8	30.6	55.5		59.8	14.8	1.65	55.1	14.6	0.36	2.3	55.6	2.75	2.5	3.5	3.8	5.0	196.5	
BZ987-331	54.5	30.1	54.3		40.0	14.6	1.83	45.4	14.1	0.46	3.5	56.9	5.50	3.0	3.0	3.3	5.0	205.3	
T801.93	56.4	33.9	60.5		63.4	14.8	1.89	50.6	13.6	0.56	3.5	57.8	4.25	3.0	3.8	3.0	5.5	210.0	
T1052	58.6	32.2	62.4		65.7	15.3	1.83	52.7	14.7	0.42	3.3	56.3	4.88	3.5	4.3	3.0	5.5	197.0	
NX95-5106	56.6	29.9	62.4		50.9	14.7	1.79	48.2	14.2	0.45	3.3	55.9	4.81	3.5	3.3	3.3	5.5	206.5	
SDM50005	57.5	29.9	55.0		55.6	14.8	1.83	49.0	14.4	0.42	2.3	55.5	3.19	2.5	3.5	3.3	4.3	189.8	
WA7802	55.3	30.5	55.8		51.9	14.4	1.74	52.8	13.6	0.41	3.0	54.8	4.00	3.5	4.3	3.3	5.0	197.5	
TX92U2317	56.5	30.5	61.6		58.3	13.8	1.70	50.5	12.9	0.45	2.5	54.4	4.25	2.5	4.0	3.8	4.6	190.3	
BW693	57.1	31.3	56.9		64.7	15.3	1.77	54.4	14.9	0.42	3.0	57.2	2.94	3.0	4.3	3.5	5.3	203.8	

RATINGS:

DOUGH CHAR (DC):  
CRUMB COLOR (CC):  
CRUMB GRAIN (CG):  
CRUMB TEXTURE (CT):

0  
STICKY-WEAK  
YELLOW  
IRREG, THICK  
HARSH

3  
ELASTIC  
DULL  
OPEN, THICK  
COARSE

6  
BUCKY  
BRIGHT WHITE  
FINE  
SILKY



1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB  
FARGO, ND

Table of URN Averages:  
Southeast Region

REGION: <i>Southeast</i>		FARGO, ND																			
VARIETY	TW (lb/bu)	KWT (gr)	SKWCS		NIR	WHEAT		FLOUR		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	G	T	LOAF VOL (cc)
			HARDNESS	INDEX		PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	Rating-----										
Std. Butte 86	59.4	32.4	74.9		76.1	15.3	1.77	53.4	13.7	0.38	2.3	56.5	3.13	2.5	3.0	3.5	5.3				195.0
Marquis	56.0	25.4	<u>76.5</u>		65.7	14.5	1.89	50.9	13.4	0.43	2.0	52.1	4.19	<u>3.3</u>	3.0	3.5	4.5				188.8
Chris	58.4	27.3	74.6		72.6	<u>15.8</u>	1.80	52.2	<u>15.1</u>	0.40	<u>2.5</u>	56.4	3.50	<u>3.0</u>	3.0	<u>3.8</u>	4.8				<u>202.8</u>
Era	57.8	26.8	69.1		69.3	13.9	1.82	53.2	12.6	0.42	2.0	53.1	4.50	<u>3.5</u>	<u>3.5</u>	3.5	4.5				188.0
Stoa	58.3	28.5	<u>75.6</u>		68.0	15.2	1.94	49.5	<u>14.1</u>	0.40	<u>3.0</u>	<u>56.6</u>	4.31	<u>3.0</u>	3.0	3.5	5.3				<u>203.3</u>
SD3249	<u>61.7</u>	29.5	74.4		63.8	15.3	1.80	51.6	<u>14.5</u>	<u>0.36</u>	<u>3.3</u>	55.9	4.56	<u>3.8</u>	3.0	3.0	4.8				<u>200.5</u>
SD8108	<u>60.3</u>	30.4	64.2		52.6	14.7	<u>1.75</u>	46.3	13.6	<u>0.34</u>	<u>3.0</u>	54.4	6.00	<u>3.5</u>	<u>3.8</u>	<u>4.0</u>	4.5				<u>198.3</u>
SD3219	<u>60.6</u>	30.3	72.0		67.1	14.1	<u>1.76</u>	51.9	12.4	<u>0.37</u>	2.0	52.5	6.56	<u>3.0</u>	<u>3.5</u>	<u>4.3</u>	4.5				179.0
SD8119	<u>59.5</u>	31.5	69.8		75.5	14.9	1.83	<u>55.9</u>	13.4	0.41	<u>2.5</u>	<u>56.6</u>	3.31	<u>3.0</u>	<u>3.3</u>	<u>3.8</u>	5.0				189.0
SD3310	<u>61.4</u>	<u>32.7</u>	62.8		48.6	15.2	<u>1.74</u>	52.9	<u>14.4</u>	<u>0.32</u>	2.0	56.2	3.63	<u>3.0</u>	<u>3.5</u>	<u>4.0</u>	5.0				<u>198.5</u>
MN93413	56.8	29.0	68.2		70.1	13.9	1.83	53.2	12.3	0.43	<u>2.5</u>	54.2	4.06	2.5	<u>3.5</u>	<u>3.8</u>	5.0				189.0
SBE0050	57.6	28.7	67.7		59.3	14.4	1.79	50.1	13.3	0.41	<u>2.8</u>	54.6	5.75	<u>3.5</u>	<u>4.0</u>	3.0	4.3				193.0
MN94200	58.5	28.9	73.9		71.0	14.4	1.79	51.0	12.9	0.43	<u>2.8</u>	55.4	4.69	<u>3.3</u>	<u>4.5</u>	3.0	5.0				194.3
MN94055	59.2	<u>33.6</u>	61.0		52.8	14.4	1.78	50.9	13.4	0.40	1.3	53.6	3.00	1.8	<u>3.8</u>	<u>4.5</u>	4.5				188.8
SBF0402	<u>59.5</u>	<u>32.5</u>	60.4		59.5	<u>15.4</u>	1.83	<u>56.8</u>	<u>14.3</u>	0.39	<u>3.0</u>	56.0	4.94	<u>3.8</u>	<u>3.5</u>	3.5	5.0				<u>196.5</u>
ND691	58.0	27.3	<u>81.4</u>		69.3	14.6	<u>1.72</u>	<u>54.4</u>	13.3	0.39	<u>3.0</u>	55.9	6.00	<u>3.8</u>	<u>3.3</u>	<u>4.0</u>	4.8				193.0
ND694	<u>61.3</u>	29.2	<u>75.1</u>		69.8	<u>15.5</u>	<u>1.77</u>	52.1	<u>14.3</u>	<u>0.38</u>	<u>2.8</u>	56.3	4.19	<u>3.0</u>	<u>4.8</u>	3.5	5.3				<u>199.3</u>
ND695	<u>60.1</u>	30.2	71.0		63.5	15.3	1.79	52.6	<u>14.2</u>	<u>0.35</u>	<u>2.5</u>	55.1	3.63	<u>3.0</u>	<u>3.8</u>	3.3	5.3				<u>202.5</u>
ND704	<u>61.2</u>	31.5	69.3		68.0	15.1	<u>1.71</u>	<u>54.1</u>	<u>13.9</u>	<u>0.36</u>	<u>2.5</u>	55.8	4.75	<u>3.0</u>	<u>3.5</u>	<u>4.0</u>	5.3				<u>202.8</u>

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table of URN Averages:  
Southeast Region

FARGO, ND

REGION: *Southeast*

VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	-----Rating-----								LOAF VOL (cc)
					PRO	ASH (14% mb)	FLOUR EXT (%)	FLOUR (14 % mb)				D	C	C	C	G	T			
								PRO										ASH		
MT9433	59.0	29.4	74.3	<u>82.2</u>	15.1	1.83	<u>56.2</u>	13.6	0.43	<u>2.5</u>	3.38	<u>3.0</u>	<u>3.5</u>	<u>4.3</u>	4.8	<u>204.8</u>				
MT9508	57.4	31.1	58.0	45.8	15.0	1.81	47.2	<u>14.5</u>	0.39	<u>2.5</u>	2.88	<u>3.0</u>	<u>3.5</u>	3.3	4.8	<u>216.3</u>				
B91-0228	<u>59.9</u>	31.9	69.9	72.6	15.1	1.99	50.0	<u>13.9</u>	0.44	<u>2.5</u>	6.56	<u>3.0</u>	<u>4.8</u>	3.3	5.0	<u>196.8</u>				
N93-0119	<u>59.5</u>	30.1	<u>75.9</u>	<u>84.2</u>	15.2	1.80	<u>53.9</u>	13.1	0.40	2.3	4.00	2.5	<u>3.8</u>	3.5	5.0	190.3				
N93-0136	<u>59.6</u>	29.0	65.3	60.8	13.6	<u>1.76</u>	<u>56.3</u>	12.2	<u>0.38</u>	2.0	4.88	<u>3.0</u>	<u>4.0</u>	<u>4.3</u>	3.4	172.5				
N93-0211	<u>59.5</u>	27.6	74.8	67.3	14.8	1.85	<u>54.4</u>	13.2	0.39	2.3	3.50	<u>3.0</u>	<u>3.3</u>	3.0	4.8	<u>197.8</u>				
Sharpshooter	<u>59.9</u>	31.9	59.3	60.8	14.8	<u>1.70</u>	<u>55.5</u>	<u>14.0</u>	<u>0.35</u>	<u>2.5</u>	3.13	2.5	<u>3.5</u>	3.3	5.0	<u>195.8</u>				
BZ987-331	56.3	<u>34.2</u>	49.9	40.7	14.1	1.85	46.6	13.2	<u>0.37</u>	<u>3.5</u>	7.50	<u>3.8</u>	<u>3.3</u>	3.5	4.8	<u>197.3</u>				
T801.93	58.7	<u>34.7</u>	63.2	71.7	15.0	1.92	49.7	13.3	0.53	<u>3.3</u>	6.13	<u>3.8</u>	<u>3.5</u>	3.5	<u>5.5</u>	<u>218.0</u>				
T1052	58.5	<u>33.0</u>	57.2	58.5	<u>15.3</u>	1.93	50.2	<u>14.3</u>	0.42	<u>3.3</u>	8.00	<u>5.3</u>	<u>4.5</u>	3.0	4.8	183.8				
NX95-5106	58.4	32.0	64.1	50.9	14.5	1.79	48.1	13.7	0.41	<u>3.3</u>	6.06	<u>3.5</u>	3.0	3.5	5.3	<u>199.8</u>				
SDM50005	57.9	29.1	58.6	54.6	14.7	1.90	52.3	<u>13.9</u>	0.40	<u>2.8</u>	3.63	<u>3.0</u>	<u>3.5</u>	3.3	4.8	<u>202.5</u>				
WA7802	54.9	29.6	57.8	53.8	14.2	1.78	48.8	13.2	<u>0.38</u>	<u>3.3</u>	5.19	<u>3.0</u>	<u>3.5</u>	3.5	5.3	<u>198.5</u>				
TX92U2317	56.1	30.1	61.4	52.1	14.0	<u>1.77</u>	46.7	12.6	0.46	2.3	5.13	<u>3.5</u>	<u>3.8</u>	<u>4.3</u>	5.0	191.3				
BW693	55.6	31.6	62.5	67.7	<u>15.6</u>	1.79	<u>53.8</u>	<u>14.8</u>	0.40	<u>3.0</u>	3.00	<u>3.0</u>	<u>5.0</u>	3.5	<u>5.5</u>	<u>218.8</u>				

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BUCKY

BRIGHT WHITE

FINE

SILKY

6

3

0

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table of URN Averages:  
Midwest Region

REGION: <i>Midwest</i>		FARGO, ND																		
VARIETY	TW (lb/bu)	KWT (gr)	SKWCS		NIR	WHEAT		FLOUR		FLOUR		MIX		BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
			HARDNESS	INDEX		PRO	ASH (14% mb)	EXT	(%)	PRO	ASH (14 % mb)	PAT	FAT							
Std. Butte 86	58.6	32.5	60.9		75.2	16.5	1.92	55.5	15.8	0.44	2.8	59.1	2.56	2.8	3.8	3.3	5.5		212.0	
Marquis	57.9	28.8	<u>61.6</u>		67.3	15.8	<u>1.86</u>	52.5	15.2	<u>0.44</u>	2.5	56.2	3.50	<u>3.0</u>	3.5	<u>4.3</u>	4.8		209.5	
Chris	57.8	26.1	<u>63.2</u>		67.2	16.3	<u>1.82</u>	54.7	<u>15.8</u>	<u>0.40</u>	2.8	56.1	3.63	<u>3.0</u>	3.0	<u>3.8</u>	4.8		203.0	
Era	57.3	27.3	<u>63.5</u>		62.5	14.9	<u>1.82</u>	55.2	13.9	0.47	2.8	54.0	5.13	2.8	3.0	<u>4.3</u>	4.5		200.8	
Stoa	57.7	27.4	<u>67.3</u>		67.5	15.9	<u>1.78</u>	55.3	15.2	<u>0.43</u>	<u>3.3</u>	58.3	4.44	<u>3.0</u>	3.0	<u>3.5</u>	5.5		<u>214.5</u>	
SD3249	<u>60.8</u>	29.4	60.5		70.4	<u>16.8</u>	<u>1.86</u>	<u>56.8</u>	<u>16.2</u>	<u>0.40</u>	<u>3.3</u>	57.6	4.19	<u>3.0</u>	<u>4.0</u>	<u>3.5</u>	5.5		209.8	
SD8108	<u>59.3</u>	30.0	55.8		51.5	15.5	<u>1.76</u>	50.5	14.8	<u>0.36</u>	<u>3.8</u>	56.5	5.25	<u>3.0</u>	3.0	<u>4.5</u>	5.3		209.5	
SD3219	<u>60.4</u>	31.0	<u>65.1</u>		68.3	15.8	1.94	<u>56.4</u>	14.4	<u>0.44</u>	2.8	56.5	4.63	2.8	3.8	<u>4.0</u>	5.0		210.3	
SD8119	58.4	31.4	<u>62.5</u>		74.0	16.3	<u>1.87</u>	<u>56.1</u>	15.6	0.45	2.5	58.7	3.13	<u>3.0</u>	3.8	3.0	<u>5.8</u>		<u>216.8</u>	
SD3310	<u>60.3</u>	31.8	52.5		55.7	<u>17.3</u>	<u>1.89</u>	54.7	<u>17.1</u>	<u>0.38</u>	2.8	58.5	2.69	<u>3.0</u>	2.8	3.0	5.3		<u>214.8</u>	
MN93413	55.9	29.4	<u>61.9</u>		64.3	14.3	<u>1.76</u>	<u>56.8</u>	13.1	0.45	2.8	55.9	3.88	2.8	3.8	<u>4.5</u>	4.5		197.0	
SBE0050	57.1	27.5	<u>65.5</u>		56.0	15.7	<u>1.84</u>	51.1	15.3	0.46	<u>3.8</u>	57.4	5.25	2.8	<u>4.0</u>	<u>3.8</u>	4.8		<u>215.5</u>	
MN94200	<u>58.9</u>	29.4	<u>69.0</u>		72.6	15.6	<u>1.82</u>	<u>55.5</u>	14.7	<u>0.44</u>	<u>3.3</u>	57.6	4.19	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>	4.5		203.5	
MN94055	58.3	<u>33.3</u>	54.7		52.1	15.4	<u>1.83</u>	51.8	15.0	<u>0.42</u>	1.5	55.1	2.81	2.0	2.8	<u>4.3</u>	5.0		195.0	
SBF0402	<u>58.9</u>	<u>33.4</u>	53.8		62.3	<u>16.9</u>	<u>1.82</u>	55.2	<u>16.4</u>	<u>0.42</u>	<u>4.0</u>	59.0	4.31	<u>3.0</u>	3.5	<u>4.0</u>	5.5		<u>218.0</u>	
ND691	58.4	27.0	<u>71.1</u>		67.1	15.1	<u>1.64</u>	<u>57.1</u>	14.6	<u>0.43</u>	<u>3.0</u>	57.4	4.88	2.8	2.8	3.0	5.5		206.8	
ND694	<u>60.2</u>	27.6	<u>68.8</u>		70.9	16.2	<u>1.79</u>	<u>57.2</u>	15.4	<u>0.41</u>	<u>3.8</u>	58.3	4.06	<u>3.0</u>	<u>4.5</u>	<u>4.0</u>	<u>5.8</u>		207.5	
ND695	<u>60.2</u>	29.9	<u>62.8</u>		64.4	15.8	<u>1.75</u>	54.3	15.2	<u>0.38</u>	2.8	56.5	3.69	<u>3.0</u>	3.5	<u>3.5</u>	<u>5.8</u>		209.8	
ND704	<u>60.6</u>	31.8	<u>62.5</u>		66.8	16.0	<u>1.80</u>	<u>58.7</u>	15.5	<u>0.39</u>	<u>3.8</u>	57.8	4.13	<u>3.0</u>	3.5	3.0	5.0		<u>217.8</u>	



1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table of URN Averages:  
Midwest Region

FARGO, ND

REGION: *Midwest*

VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS		NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX PAT	BAKE ABS	MIX TIME (min)	D C C C G T						LOAF VOL (cc)
			HARDNESS INDEX			PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	C				C	C	G	T			
MMT9433	<u>59.4</u>	31.8	<u>63.9</u>		<u>81.2</u>	15.6	<u>1.80</u>	<u>59.1</u>	14.6	<u>0.44</u>	2.8	57.7	3.31	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>	5.3	206.5			
MMT9508	58.1	<u>34.3</u>	48.0		49.4	<u>16.8</u>	<u>1.86</u>	53.3	<u>16.5</u>	<u>0.41</u>	3.0	<u>59.3</u>	2.44	<u>3.0</u>	<u>4.3</u>	<u>3.5</u>	5.3	<u>223.3</u>			
B91-0228	<u>60.3</u>	<u>33.1</u>	<u>61.1</u>		70.3	16.5	1.94	<u>55.7</u>	15.8	0.47	<u>3.5</u>	57.7	5.50	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>	5.5	206.5			
N93-0119	<u>59.3</u>	31.8	<u>69.7</u>		<u>85.9</u>	16.4	<u>1.83</u>	<u>57.0</u>	14.9	0.45	2.8	58.2	3.19	<u>3.0</u>	3.0	<u>4.5</u>	5.3	<u>213.3</u>			
N93-0136	<u>59.5</u>	28.7	<u>61.8</u>		58.5	14.9	<u>1.77</u>	<u>59.1</u>	14.0	<u>0.42</u>	2.3	55.3	4.13	2.3	3.3	<u>3.8</u>	4.8	191.8			
N93-0211	<u>59.5</u>	30.0	<u>64.3</u>		70.6	16.2	<u>1.89</u>	<u>59.2</u>	14.9	<u>0.44</u>	2.8	57.2	3.50	2.8	<u>4.3</u>	3.0	5.0	204.8			
Sharpshooter	<u>59.3</u>	<u>34.6</u>	43.0		50.5	16.5	<u>1.83</u>	52.5	<u>15.9</u>	<u>0.39</u>	<u>3.5</u>	<u>60.2</u>	4.00	<u>3.0</u>	<u>4.0</u>	3.0	5.5	<u>214.0</u>			
BZ987-331	56.9	<u>37.1</u>	45.0		51.0	15.9	<u>1.88</u>	51.8	15.2	0.45	<u>5.0</u>	<u>60.4</u>	5.75	2.8	3.5	3.3	5.3	<u>218.5</u>			
T801.93	58.0	<u>36.9</u>	54.9		69.5	16.4	1.97	53.6	15.4	0.52	<u>4.3</u>	<u>60.0</u>	5.25	<u>3.0</u>	<u>4.3</u>	3.0	<u>5.8</u>	<u>215.8</u>			
T1052	58.1	<u>35.5</u>	53.4		56.9	<u>16.7</u>	1.96	53.0	<u>16.1</u>	0.46	<u>4.0</u>	58.8	5.00	<u>3.8</u>	<u>4.3</u>	<u>3.8</u>	<u>5.8</u>	208.3			
NX95-5106	58.2	<u>35.2</u>	56.0		49.1	15.3	<u>1.92</u>	50.1	14.5	<u>0.43</u>	<u>3.8</u>	58.3	5.50	<u>3.0</u>	3.5	3.3	5.5	207.0			
SDM50005	58.6	<u>32.9</u>	53.2		54.4	15.7	<u>1.85</u>	55.0	15.1	<u>0.44</u>	<u>3.3</u>	57.1	3.88	<u>3.0</u>	<u>4.3</u>	<u>3.5</u>	5.0	199.5			
WA7802	57.6	<u>33.1</u>	50.1		55.5	15.4	<u>1.79</u>	<u>57.4</u>	14.5	<u>0.40</u>	<u>3.0</u>	57.2	4.38	<u>3.0</u>	3.0	3.3	5.0	209.8			
TX92U2317	57.1	31.2	57.2		54.1	15.1	<u>1.76</u>	55.1	13.8	<u>0.43</u>	2.3	56.4	3.88	2.8	3.0	<u>4.0</u>	5.0	203.3			
BW693	56.7	29.1	56.2		62.3	<u>16.5</u>	1.93	<u>57.0</u>	<u>16.0</u>	<u>0.44</u>	<u>3.3</u>	<u>59.7</u>	2.88	<u>3.0</u>	<u>4.5</u>	3.0	5.3	<u>229.8</u>			

RATINGS:

DOUGH CHAIR (DC):  
CRUMB COLOR (CC):  
CRUMB GRAIN (CG):  
CRUMB TEXTURE (CT):

0

STICKY-WEAK  
YELLOW  
IRREG, THICK  
HARSH

3

ELASTIC  
DULL  
OPEN, THICK  
COARSE

6

BUCKY  
BRIGHT WHITE  
FINE  
SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS  
WHEAT QUALITY LAB

Table of URN Averages:  
West Region

REGION: <i>West</i>		FARGO, ND																	West Region			
VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	T Rating-----	LOAF VOL (cc)				
					PRO	ASH	EXT	PRO	ASH													
Std. Butte 86	61.2	36.5	63.1	70.2	12.9	1.48	53.5	11.5	0.35	2.5	56.4	3.38	1.5	2.5	3.0	2.5	159.0					
Marquis	60.6	33.1	59.8	65.9	13.4	1.58	52.1	12.6	0.38	2.0	55.6	3.25	1.5	3.0	5.5	2.8	166.5					
Cl 3651	58.0	27.8	58.3	73.9	16.0	1.54	54.5	15.1	0.40	2.5	55.8	3.75	3.0	3.0	4.0	5.5	191.0					
Chris	60.6	30.8	60.2	68.7	13.5	1.60	51.8	12.8	0.36	2.0	54.4	3.50	1.5	3.5	5.5	2.8	167.0					
Cl 13751	57.4	25.3	58.7	70.3	15.3	1.53	55.9	14.6	0.36	2.5	55.1	4.25	2.5	3.5	4.0	5.5	183.0					
Cl 13986	56.6	26.4	65.7	63.9	14.2	1.59	52.1	13.0	0.41	2.5	53.9	5.75	4.5	3.0	4.0	3.3	176.0					
Era	58.9	30.9	63.5	65.1	12.0	1.49	52.0	10.3	0.38	1.5	53.0	4.75	1.5	2.5	4.5	2.5	153.5					
ND582	57.4	27.3	64.6	58.0	15.2	1.51	56.6	14.5	0.36	4.0	56.9	5.50	4.5	3.0	4.0	5.0	192.5					
Stoa	61.1	34.1	65.4	69.7	12.9	1.48	53.6	11.6	0.33	2.0	56.0	3.75	1.5	3.5	4.5	4.0	172.0					
ND597	58.3	30.2	61.0	66.5	14.9	1.40	56.9	13.7	0.36	3.0	56.5	4.50	3.0	3.0	3.0	5.5	187.0					
SD3249	60.1	31.1	56.5	64.0	14.2	1.51	56.2	13.6	0.35	3.0	57.3	3.94	2.5	2.5	3.5	4.3	180.0					
SD8108	60.3	33.5	48.5	47.0	13.2	1.40	49.0	12.5	0.32	2.8	54.3	6.19	4.0	3.0	4.3	4.8	169.3					
SD3219	61.5	31.9	63.0	66.2	13.1	1.44	55.4	11.6	0.38	2.3	54.1	5.75	1.8	2.3	4.3	3.8	162.8					
SD8119	58.7	32.2	60.5	63.9	13.7	1.50	57.3	12.5	0.39	2.3	56.8	3.75	2.3	3.0	4.3	4.5	169.0					
SD3310	60.8	32.4	49.3	47.0	13.7	1.47	52.8	13.4	0.35	2.3	56.8	3.56	2.3	2.3	4.0	4.8	178.8					
MN93413	57.7	32.1	58.0	62.5	12.7	1.37	55.6	11.2	0.39	2.3	55.2	3.94	2.3	3.5	4.5	4.0	166.8					
SBE0050	58.8	30.9	61.2	52.9	12.8	1.40	50.5	11.8	0.37	2.8	54.8	6.25	3.0	3.3	4.5	3.8	166.3					
MN94200	58.9	29.8	68.9	74.8	13.5	1.49	51.0	12.1	0.39	2.5	56.0	4.69	2.3	3.8	4.5	4.3	170.0					
MN94055	59.3	33.9	53.0	62.7	13.4	1.49	52.3	12.6	0.34	1.8	55.0	2.81	1.8	2.5	3.5	4.8	168.0					

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USDA / ARS  
WHEAT QUALITY LAB

Table of URN Averages:  
West Region

REGION: West		FARGO, ND														Wheat Region									
VARIETY	TW (lb/bu)	KWT (gr)	SKWCS		NIR	WHEAT		FLOUR		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)						
			HARDNESS INDEX	NESS		PRO	ASH (14% mb)	EXT (%)	PRO (14 % mb)	ASH (14 % mb)															
SBF0402	59.3	33.6	53.5		55.1	14.1	1.47	55.5	13.4	0.36	3.5	57.0	6.00	3.0	3.3	4.5	3.9	179.0							
ND691	58.3	28.0	63.7		68.0	13.6	1.37	58.9	12.7	0.38	3.0	57.5	4.94	2.8	3.0	3.5	4.3	182.8							
ND694	60.7	30.7	62.5		67.5	14.1	1.46	56.7	13.1	0.37	2.5	56.7	4.06	2.3	4.3	4.3	4.4	182.3							
ND696	60.7	33.3	55.8		58.6	13.9	1.38	53.7	12.9	0.34	2.3	56.8	3.38	2.3	3.5	3.8	4.4	181.3							
ND704	60.0	31.1	61.7		60.1	13.6	1.45	55.5	12.6	0.37	2.5	56.3	4.38	2.3	3.3	3.8	4.5	183.5							
MT9433	60.5	34.3	60.5		82.5	14.7	1.50	59.0	13.4	0.38	2.5	58.0	3.06	2.5	3.5	3.8	5.0	185.8							
MT9508	60.6	36.4	47.6		52.4	14.0	1.44	54.3	13.5	0.34	2.3	57.6	2.56	2.5	3.5	4.3	5.3	187.8							
B91-0228	62.0	37.7	59.5		72.5	14.4	1.57	53.9	13.4	0.40	3.3	57.8	4.94	3.5	4.3	3.0	5.0	177.8							
N93-0119	59.4	31.0	66.5		82.6	13.7	1.50	54.7	11.8	0.41	2.3	56.4	4.44	2.3	2.5	3.8	3.8	173.3							
N93-0136	59.9	30.9	57.5		60.0	12.7	1.45	56.3	11.5	0.35	2.3	53.6	4.63	2.3	3.0	5.5	3.8	163.5							
N93-0211	60.2	31.1	63.1		68.9	14.0	1.53	55.8	12.5	0.38	2.5	57.1	3.75	2.3	3.5	4.0	5.0	174.5							
FA994601	60.9	31.6	54.3		51.8	14.2	1.39	55.8	13.6	0.35	3.0	56.8	3.50	3.0	3.0	4.0	5.5	183.0							
Sharpshooter	63.0	36.2	52.6		56.3	13.2	1.42	51.9	12.4	0.31	2.0	58.5	3.50	2.0	3.0	3.0	5.0	175.0							
BZ987-31	56.3	33.5	50.1		41.3	14.3	1.48	51.5	13.6	0.36	4.5	58.0	7.50	3.0	3.0	3.0	6.0	196.5							
BZ987-331	60.4	43.1	45.8		49.0	11.8	1.40	47.8	11.0	0.34	2.5	58.4	4.75	2.0	1.0	3.0	3.3	167.0							
T801.93	60.4	41.0	55.3		73.1	13.4	1.50	52.3	12.0	0.44	2.8	58.0	6.19	2.5	3.3	4.0	4.6	183.5							
T1052	58.6	35.8	56.1		60.5	14.5	1.58	53.1	13.7	0.39	3.0	57.9	6.06	3.5	4.0	3.8	5.5	185.8							
NX95-5106	61.6	39.3	55.7		59.5	12.0	1.44	51.9	10.6	0.34	2.0	56.9	4.25	2.0	4.0	3.5	4.0	161.5							
NX955106	56.9	30.5	61.8		50.4	15.1	1.52	49.4	14.6	0.39	4.5	57.3	8.00	3.0	3.5	4.0	6.0	190.5							
SDM50005	59.3	33.6	53.9		57.1	14.0	1.51	53.9	13.4	0.37	2.3	56.8	3.44	2.3	3.3	3.3	5.0	183.8							



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USDA / ARS  
WHEAT QUALITY LAB

Table of URN Averages:  
West Region

REGION: *West*

FARGO, ND

REGION: West		VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	T	LOAF VOL (cc)										
TW (lb/bu)	KWT (gr)						SKWCS HARDNESS INDEX	NIR HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO										ASH (14 % mb)	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	G	T
WA7802	58.8	36.3	52.8	55.6	13.4	1.46	52.7	12.4	0.33	2.3	56.6	4.63	2.3	3.8	3.0	5.0	183.3														
TX922U231	56.5	28.8	60.2	51.8	14.8	1.54	47.9	13.4	0.41	2.0	55.6	4.50	3.0	3.0	3.0	6.0	208.0														
TX92U231	55.0	28.4	59.3	52.0	15.4	1.64	47.9	14.7	0.39	3.0	57.1	4.00	3.0	3.0	3.0	6.0	200.0														
TX92U2317	58.6	33.5	62.1	57.1	11.8	1.53	48.9	10.3	0.39	1.5	54.1	5.13	1.5	4.0	3.5	4.0	159.5														
BW693	58.9	34.1	52.3	67.3	14.4	1.50	54.4	13.5	0.36	2.8	57.2	3.38	2.3	3.5	5.3	5.3	183.5														

												0			3			6		
RATINGS:												STICKY-WEAK			ELASTIC			BUCKY		
DOUGH CHAR (DC):												YELLOW			DULL			BRIGHT WHITE		
CRUMB COLOR (CC):												IRREG, THICK			OPEN, THICK			FINE		
CRUMB GRAIN (CG):												HARSH			COARSE			SILKY		
CRUMB TEXTURE (CT):																				

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WHEAT QUALITY LAB

Table 15

LOCATION: *Brookings, SD*

NURSERY: *AYT*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)		
					A	B	C		D	INDEX	PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14 % mb)									ASH (14 % mb)	
CHRIS	59.0	28.7	68	5	3	6	19	72	74.3	65	15.0	1.71	65.3	14.8	0.44	62.5	4	62.5	2.75	3	3	3	5	202
BUTTE 86	60.6	33.8	88	1	1	9	26	64	68.7	77	14.2	1.83	62.9	12.9	0.42	63.1	3	63.0	2.50	3	4	5	4	182
SHARP	61.3	32.1	83	2	4	20	27	49	61.5	63	14.0	1.81	65.7	13.7	0.40	62.7	3	60.8	2.50	3	3	3	4	180
2375	60.1	31.3	70	1	3	11	24	62	72.7	69	13.4	1.81	65.1	12.3	0.42	59.6	4	61.0	3.75	3	3	3	4	173
RUSS	60.5	32.7	81	3	2	10	31	57	63.9	74	13.6	1.75	65.6	12.6	0.45	61.8	3	62.0	3.75	3	4	3	5	178
OXEN	59.1	28.7	65	3	1	4	23	72	69.6	69	14.5	1.65	68.1	13.5	0.39	62.5	7	62.5	4.25	3	3	5	4	185
FORGE	60.5	30.2	67	5	3	5	28	64	65.7	67	13.7	1.85	63.6	12.9	0.40	58.2	3	58.5	3.50	3	3	5	4	178
SD3219	61.6	32.3	77	4	3	11	27	59	66.3	64	12.9	1.67	61.1	11.3	0.42	55.5	3	57.0	5.00	3	4	4	5	162
SD3249	61.7	29.9	67	4	2	8	20	70	73.9	66	14.8	1.81	64.7	13.9	0.40	60.5	4	60.5	4.50	3	4	3	5	191
SD8108	59.8	30.6	69	5	3	11	32	54	63.9	63	14.0	1.78	62.2	13.6	0.38	57.9	5	60.0	4.50	4	4	3	4	178
SD8119	59.8	33.8	86	3	2	12	36	50	63.0	72	13.5	1.82	64.8	12.4	0.42	60.3	3	58.5	3.50	4	3	3	4	160
SD3310	61.3	34.6	83	2	8	29	26	37	55.8	51	14.2	1.69	64.5	13.5	0.36	60.0	3	60.0	3.50	3	3	3	4	188
SD3333	58.3	28.1	68	4	2	11	24	63	68.6	58	13.9	1.79	59.5	13.0	0.38	62.5	5	62.5	6.00	5	3	6	5	168
SD3335	61.1	35.7	81	3	2	13	32	53	63.6	73	14.2	1.82	64.2	13.0	0.42	61.8	2	62.0	3.00	3	4	5	5	200
SD3337	59.5	34.0	75	3	2	11	25	62	66.7	81	14.3	1.80	63.1	13.9	0.41	60.0	4	62.5	4.75	3	3	3	5	188
SD3345	61.2	32.5	79	2	0	3	21	76	73.9	86	14.7	1.91	64.5	13.7	0.42	62.5	3	63.5	3.00	3	3	3	5	185
SD3348	59.9	29.6	68	5	26	25	23	26	47.9	64	14.3	1.68	62.5	13.7	0.34	60.8	4	60.8	5.00	4	3	3	5	192
SD3355	58.0	29.1	60	6	1	5	16	78	74.5	65	14.1	1.76	63.1	13.2	0.46	59.6	3	60.5	3.00	3	3	3	4	182
SD3356	61.3	25.9	59	6	0	1	9	90	85.4	73	14.9	1.80	65.4	14.2	0.40	62.5	5	62.5	3.75	3	3	3	4	188
SD3357	62.1	33.2	82	1	2	16	29	53	64.2	63	14.6	1.90	62.4	13.6	0.38	60.8	3	62.5	3.50	3	3	3	5	192

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Table 15 (cont)

LOCATION: Brookings, SD

FARGO, ND

NURSERY: AYT

NURSERY:		AYT																							
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	-----Rating-----					LOAF VOL (cc)
					DISTRIBUTION					PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	C					C	G	T			
					A	B	C	D															INDEX		
SD3367	60.6	32.2	82	2	1	9	26	64	68.0	67	14.4	1.74	62.0	13.5	0.39	61.4	3	62.8	2.25	3	3	3	4	182	
SD3369	62.2	32.4	71	2	5	19	24	52	64.2	73	15.1	1.74	61.2	13.8	0.38	61.1	3	59.0	2.25	3	3	3	5	190	
SD3390	60.5	29.8	66	4	1	5	17	77	74.3	69	13.6	1.88	59.7	13.0	0.39	60.8	4	62.0	2.75	3	3	3	5	182	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

		0		3		6	
RATINGS:	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY		
	CRUMB COLOR (CC):	YELLOW	GREY	DULL	BRIGHT WHITE		
	CRUMB GRAIN (CG):	IRREG, THICK	OPEN, THICK	COARSE	FINE		
	CRUMB TEXTURE (CT):	HARSH			SILKY		



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WHEAT QUALITY LAB

Table 16

LOCATION: Crookston, MN  
NURSERY: AYT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating				LOAF VOL (cc)
					A	B	C	D		PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14 % mb)	ASH (14 % mb)	ABS						C	C	G	T	
CHRIS	58.5	26.0	61	3	1	3	7	89	101.7	64	15.7	1.88	66.8	15.1	0.56	60.0	4	60.0	2.75	3	3	6	5	5	210
2375	59.7	32.2	63	4	1	5	18	76	80.8	67	14.4	1.78	68.4	13.8	0.49	58.6	2	58.8	3.00	2	3	5	4	4	202
VERDE	57.2	28.1	68	3	1	4	20	75	76.2	71	14.3	1.80	70.1	13.4	0.46	56.5	2	57.5	3.00	2	3	5	4	4	195
NORM	55.2	29.2	59	4	3	8	19	70	72.4	64	13.6	1.84	65.3	13.3	0.51	58.2	3	58.5	3.25	2	3	5	4	4	190
MN93262	58.1	31.8	62	3	2	9	25	64	72.1	62	14.4	1.63	69.0	13.5	0.49	60.0	3	62.0	3.00	3	3	5	4	4	202
MN93377	58.6	29.2	60	5	0	2	12	86	84.5	63	14.3	1.71	64.2	12.4	0.47	55.3	2	61.0	4.00	2	3	3	4	4	202
MN94053	58.6	28.8	54	6	3	8	15	74	85.2	48	14.3	1.97	59.0	13.2	0.56	55.8	2	60.0	3.00	2	4	3	4	4	190
MN94151	57.8	28.8	65	5	1	5	20	74	76.0	59	13.9	1.81	62.3	12.9	0.47	55.5	2	55.5	2.25	2	4	5	4	4	202
MN95002	60.0	29.1	51	5	1	10	18	71	81.0	60	14.7	1.96	63.7	14.0	0.42	61.8	3	58.0	2.75	3	3	5	5	5	208
MN95023	58.2	30.0	66	4	1	7	19	73	76.8	56	13.4	1.75	66.2	12.8	0.42	62.1	3	58.0	2.75	3	3	3	5	5	198
MN95051	57.8	26.7	44	6	1	2	8	89	90.5	60	13.6	1.59	64.0	13.2	0.46	62.7	3	58.8	3.25	3	3	4	5	5	192
MN95084	59.1	28.7	64	4	1	3	16	80	82.5	66	13.3	1.87	64.2	12.0	0.59	55.8	3	60.0	4.25	3	3	3	5	5	182
MN95102	57.7	28.4	60	5	1	2	7	90	99.2	72	14.8	1.91	64.8	14.0	0.61	64.4	4	61.0	1.75	2	3	3	5	5	175
MN95124	59.4	27.0	39	7	34	14	10	42	55.7	27	13.3	1.99	41.2	12.1	0.46	56.9	3	58.8	3.00	2	5	3	4	4	172
MN95201	58.0	29.7	64	4	26	25	17	32	51.2	57	14.6	1.87	66.2	13.5	0.43	59.3	3	58.5	2.50	2	4	3	5	5	191
MN95211	59.3	31.3	77	2	5	18	22	55	67.7	77	14.7	1.79	61.5	13.7	0.47	60.8	4	56.8	3.00	3	3	5	6	6	212
MN95222	58.6	29.8	66	3	6	7	22	65	69.4	61	14.7	1.71	65.1	13.7	0.43	60.8	3	58.8	2.50	3	4	3	6	6	190
MN95223	57.8	27.7	55	5	3	13	18	66	72.8	56	14.4	1.88	61.7	13.7	0.41	60.0	3	58.5	2.75	3	4	5	5	5	192
MN95229	59.6	30.2	61	5	1	2	15	82	86.0	70	15.2	1.77	61.9	14.0	0.44	60.0	3	60.5	2.50	3	3	5	6	6	209
MN95230	56.4	26.3	55	5	3	9	18	70	78.0	46	13.9	1.94	62.3	12.8	0.38	57.6	3	57.5	3.50	3	3	3	5	5	205

# 1997 Spring Wheat Quality Report

LOCATION: Crookston, MN  
NURSERY: AYT

## USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 16 (cont)

NURSERY:		AY1		SKWCS HARDNESS												NIR		WHEAT		FLOUR		MIX		BAKE	MIX	D		C		C	LOAF
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION			HARD- NESS	INDEX	A	B	C	D	C	D	PRO (14% mb)	ASH (14% mb)	EXT (%)	FLOUR PRO	FLOUR ASH	ABS	PAT	ABS	TIME (min)	D	C	C	G	T	VOL (cc)	
MN95231	58.6	27.1	51	6	1	1	7	91	101.3							61	13.7	1.67	59.5	11.8	0.48	55.0	3	58.5	4.75	2	3	5	5	198	
MN95242	56.5	29.6	59	6	1	5	24	70	73.8							53	14.0	1.67	58.2	13.2	0.46	56.2	2	58.5	2.75	2	4	5	5	205	
MN95244	55.8	29.9	51	7	3	3	17	77	74.8							55	15.3	1.67	57.2	14.1	0.53	60.8	3	60.8	2.75	2	4	3	5	182	
MN95268	56.5	25.6	29	12	1	4	13	82	79.3							71	13.8	1.58	62.1	12.6	0.41	59.3	3	59.0	6.00	3	3	3	6	206	
MN95279	53.2	25.8	29	13	4	12	15	69	67.6							51	14.3	1.61	56.5	13.7	0.40	58.2	3	57.0	3.75	3	3	5	5	190	
MN95284	59.7	29.0	64	3	1	4	18	77	81.2							60	13.7	1.56	62.0	12.8	0.41	60.0	3	59.0	3.00	3	4	6	4	210	
MN95285	58.2	29.9	62	3	3	10	26	61	70.4							59	14.2	1.55	61.3	13.3	0.43	59.0	3	60.5	3.75	3	4	6	4	210	
MN95286	60.5	28.5	64	3	1	5	17	77	76.8							77	13.2	1.61	62.5	11.8	0.44	53.8	2	54.8	3.00	3	3	5	5	188	
MN95304	56.1	29.3	61	5	2	6	22	70	75.8							71	15.4	1.79	62.7	15.1	0.44	59.0	3	57.0	2.50	3	4	6	5	208	
MN95305	56.2	29.8	61	5	0	9	18	73	80.1							49	14.3	1.74	60.2	13.4	0.44	56.5	2	55.5	2.75	3	3	3	5	200	

DISTRIBUTION: A= % Soft

B= % Seml-Soft

C= % Seml-Hard

D= % Hard

### RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK  
YELLOW  
IRREG, THICK  
HARSH

3

ELASTIC  
DULL  
OPEN, THICK  
COARSE

PLIABLE  
GREY

CREAMY

6

BUCKY  
BRIGHT WHITE  
FINE  
SILKY

# 1997 Spring Wheat Quality Report

## USDA / ARS WHEAT QUALITY LAB

Table 17

LOCATION: Day Co.

NURSERY: AYT

### FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	Rating-----				C T	C VOL (cc)
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)						C	C	C	G		
CHRIS	58.2	25.2	53	5	0	2	11	87	85.7	62	14.0	1.74	62.0	13.6	0.39	60.3	4	59.5	3.00	3	3	5	5	5	200	
BUTTE 86	60.9	31.1	80	1	1	3	15	81	82.5	70	13.1	1.59	65.6	11.7	0.38	59.0	3	59.0	3.00	3	3	3	3	4	178	
SHARP	61.6	30.0	77	1	1	8	25	66	73.7	56	12.6	1.60	64.5	12.3	0.35	60.0	3	58.0	2.75	3	3	5	4	4	175	
2375	59.8	30.9	62	2	2	4	18	76	81.5	62	13.0	1.69	63.6	11.8	0.40	58.2	3	58.5	3.25	3	3	5	4	4	175	
RUSS	59.5	30.9	77	2	0	8	22	70	70.9	74	13.1	1.59	63.3	12.2	0.40	59.3	4	59.0	3.75	3	3	3	4	4	188	
OXEN	58.6	28.7	67	2	3	9	24	64	70.1	62	12.9	1.65	67.6	11.8	0.35	60.3	4	58.5	3.50	3	3	5	4	4	183	
FORGE	61.3	29.7	76	2	3	13	25	59	65.6	52	11.6	1.65	64.7	10.6	0.33	55.3	2	53.0	3.50	3	3	5	4	4	183	
SD3219	63.0	29.7	72	3	1	4	21	74	72.2	65	11.4	1.61	65.1	10.1	0.38	53.2	2	56.5	3.50	3	3	3	5	5	173	
SD3249	61.4	29.1	70	2	2	6	24	68	79.0	60	12.5	1.67	62.6	11.5	0.37	55.8	3	56.0	3.50	3	3	3	4	4	173	
SD8108	62.0	29.6	68	2	5	13	28	54	66.6	43	12.9	1.57	59.0	12.0	0.34	56.9	5	59.5	5.25	3	5	4	5	5	198	
SD8119	60.3	30.9	81	2	2	9	25	64	67.6	68	12.8	1.59	55.1	11.7	0.37	56.5	2	56.5	3.50	3	3	3	5	5	185	
SD3310	62.1	29.7	83	2	6	19	24	51	62.3	53	12.9	1.75	60.1	12.3	0.35	57.6	2	56.0	4.00	3	3	5	5	5	191	
SD3333	59.5	27.7	67	4	1	10	22	67	71.6	53	12.7	1.58	55.6	11.9	0.34	59.3	4	58.5	6.00	4	3	3	5	5	193	
SD3335	60.6	34.9	85	2	3	15	34	48	64.5	68	12.5	1.64	60.3	11.5	0.38	56.2	2	56.5	2.75	2	3	5	4	4	171	
SD3337	60.5	31.1	76	2	1	3	22	74	77.1	79	14.3	1.48	58.8	13.4	0.37	60.3	5	60.5	4.25	3	3	3	5	5	208	
SD3345	60.5	28.8	75	2	0	3	11	86	85.3	68	12.9	1.60	60.7	11.8	0.38	59.0	3	59.0	3.25	3	3	5	5	5	192	
SD3348	59.4	27.8	64	4	2	10	28	60	69.7	57	13.1	1.43	64.0	12.7	0.33	58.6	4	56.8	4.00	3	3	6	5	5	198	
SD3355	60.2	29.8	63	4	1	6	21	72	73.7	68	12.9	1.55	61.8	11.8	0.39	56.2	3	60.5	3.25	2	3	5	5	5	195	
SD3356	59.0	25.7	43	4	1	1	8	90	89.0	73	14.3	1.71	63.3	13.5	0.39	61.8	4	60.0	3.50	3	2	5	5	5	208	
SD3357	59.4	32.3	84	1	2	10	28	60	70.5	64	13.6	1.67	59.3	13.1	0.37	58.6	3	57.5	2.75	3	3	3	5	5	210	



# 1997 Spring Wheat Quality Report

## USDA / ARS WHEAT QUALITY LAB

Table 17 (cont)

FARGO, ND

LOCATION: Day Co.  
NURSERY: AYT

LOCATION: Day Co.		FARGO, ND																					
NURSERY:	AYT	SKWCS HARDNESS DISTRIBUTION										NIR HARD-NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14% mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

### RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK  
YELLOW

IRREG, THICK  
HARSH

PLIABLE

GREY

ELASTIC

DULL

OPEN, THICK  
COARSE

CREAMY

BUCKY  
BRIGHT WHITE  
FINE  
SILKY

6

1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 18

LOCATION: Groton, SD

FARGO, ND

NURSERY: AYT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)	
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)									
CHRIS	56.4	22.6	23	8	0	2	8	90	79.2	60	15.6	1.84	62.6	15.0	0.41	58.2	4	58.5	3.00	3	3	6	205	
BUTTE 86	58.8	28.7	60	2	1	3	11	85	78.6	74	15.0	1.73	59.8	14.0	0.42	59.3	3	59.0	3.25	3	3	5	6	198
SHARP	61.0	28.8	63	2	3	13	28	56	65.5	58	15.0	1.74	57.1	14.5	0.37	60.0	2	60.0	2.50	3	3	5	6	192
2375	58.8	27.3	36	5	2	6	25	67	69.4	64	14.6	1.71	59.1	14.0	0.43	59.0	3	59.0	2.75	2	3	5	6	202
RUSS	59.4	29.8	74	1	1	2	16	81	71.4	65	15.0	1.70	60.1	14.3	0.41	60.8	3	60.8	3.25	3	4	6	6	211
OXEN	58.8	26.9	56	4	1	6	21	72	69.3	70	14.5	1.74	61.6	13.6	0.35	59.3	3	59.0	3.50	3	5	5	6	210
FORGE	60.3	28.2	56	2	2	8	25	65	66.5	51	14.6	1.72	51.6	13.9	0.35	60.3	3	60.5	3.00	3	3	5	6	212
SD3219	59.9	28.8	50	4	2	7	17	74	68.0	64	13.9	1.58	51.9	12.8	0.40	59.6	5	59.5	4.50	3	3	5	6	190
SD3249	61.8	28.3	55	2	0	6	23	71	68.7	63	15.0	1.70	60.1	14.3	0.38	60.8	4	58.8	2.75	3	3	5	6	213
SD8108	60.9	30.5	65	2	2	11	32	55	61.1	57	14.6	1.75	55.8	14.2	0.35	59.0	4	59.0	3.00	3	3	5	6	208
SD8119	59.1	29.4	71	2	1	3	14	82	70.9	73	15.0	1.78	60.6	14.5	0.42	61.8	3	62.0	2.75	3	4	5	5	198
SD3310	61.7	29.8	76	0	21	31	25	23	46.8	43	15.3	1.56	55.6	14.9	0.35	59.6	3	59.5	2.50	3	4	5	6	221
SD3333	58.6	25.3	51	5	2	8	24	66	66.2	56	14.4	1.70	58.5	13.8	0.36	65.4	5	61.5	4.50	4	4	3	6	217
SD3335	60.7	32.6	78	2	1	4	18	77	68.5	72	14.8	1.58	62.6	13.8	0.40	60.8	3	60.8	2.50	3	4	5	6	200
SD3337	59.3	31.7	77	2	0	3	20	77	72.6	74	16.3	1.65	59.3	15.4	0.39	60.0	3	60.0	3.50	3	4	5	6	220
SD3345	61.4	28.2	65	2	1	1	11	87	75.4	75	15.3	1.73	59.8	14.9	0.40	61.8	4	58.0	3.25	3	3	5	6	216
SD3348	58.6	26.3	55	3	2	7	21	70	67.8	55	14.8	1.65	62.1	14.1	0.38	60.3	3	57.0	3.50	3	4	3	6	218
SD3355	59.4	27.5	60	4	0	2	12	86	74.7	69	13.7	1.54	62.3	12.6	0.40	55.5	2	56.5	2.75	2	4	5	6	189
SD3356	60.1	24.0	37	5	0	1	7	92	81.6	70	14.8	1.65	64.3	13.9	0.36	61.8	4	59.5	3.75	3	3	3	6	214
SD3357	59.9	31.6	75	1	5	13	34	48	59.8	61	15.2	1.81	57.0	15.1	0.35	59.6	3	58.5	2.75	3	3	3	6	220

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USDA / ARS  
WHEAT QUALITY LAB

Table 18 (cont)

LOCATION: *Groton, SD*

FARGO, ND

NURSERY: *AYT*

NURSERY:		AYT																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	-----Rating-----						LOAF VOL (cc)
					DISTRIBUTION					PRO	ASH (14% mb)	FLOUR EXT (%)	PRO	ASH (14 % mb)												
					A	B	C	D							INDEX											
SD3367	59.7	30.6	79	1	2	9	27	62	68.7	71	15.5	1.76	60.7	15.2	0.37	59.6	2	58.8	1.75	2	3	5	6	201		
SD3369	62.8	30.1	66	1	1	2	18	79	74.2	67	15.3	1.69	58.6	14.5	0.37	60.3	2	58.5	1.75	2	4	3	5	184		
SD3390	61.4	29.0	64	2	2	6	25	67	68.8	63	14.8	1.61	61.3	13.9	0.35	58.6	3	59.0	2.50	3	3	3	6	210		

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:		0		3		6	
		STICKY-WEAK	PLIABLE	ELASTIC	CREAMY	BUCKY	
DOUGH CHAR (DC):							
CRUMB COLOR (CC):		YELLOW	GREY	DULL		BRIGHT WHITE	
CRUMB GRAIN (CG):		IRREG, THICK		OPEN, THICK		FINE	
CRUMB TEXTURE (CT):		HARSH		COARSE		SILKY	



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USDA / ARS  
WHEAT QUALITY LAB

Table 19

LOCATION: *Morris, MN*

NURSERY: *AYT*

FARGO, ND

NURSERIES		AYI		SKWCS HARDNESS													NIR		WHEAT		FLOUR		FLOUR		MIX		BAKE		MIX		TIME		D		C		C		LOAF																																																																																																																																																																																																																																																																																																																																																																																																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION			HARD- NESS	INDEX	DISTRIBUTION			HARD- NESS	WHEAT		FLOUR		EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T</

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USDA / ARS  
WHEAT QUALITY LAB

Table 19 (cont)

LOCATION: Morris, MN

FARGO, ND

NURSERY: AYT

NURSERY:		AYT																											
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS								NIR		WHEAT		FLOUR		FLOUR		MIX ABS	BAKE ABS	MIX TIME (min)	D	C	C	C	T	VOL (cc)
					DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	ABS	PAT													
					A	B	C	D									INDEX												
MN95231	58.3	26.4	42	4	0	3	10	87	89.1	65	13.8	1.76	51.2	11.4	0.46	53.8	2	57.0	3	1	3	5	180						
MN95242	55.3	31.2	68	2	1	9	26	64	71.6	50	14.5	1.85	52.3	13.1	0.44	53.8	1	57.5	3	3	3	5	208						
MN95244	59.1	32.2	67	2	1	2	14	83	81.7	64	15.2	1.87	52.3	13.7	0.46	59.3	3	62.5	3	5	6	6	202						
MN95268	57.0	27.3	64	2	0	1	9	90	85.8	64	14.2	1.70	50.9	12.5	0.39	59.3	3	60.8	3	4	3	6	202						
MN95279	52.3	24.6	17	12	5	6	20	69	73.0	40	14.7	1.80	42.4	13.7	0.42	59.3	3	61.0	3	3	3	6	215						
MN95284	59.3	28.3	57	3	1	3	12	84	87.1	60	14.5	1.68	56.2	13.1	0.40	58.6	2	60.0	3	4	4	6	228						
MN95285	58.0	31.1	69	1	1	6	16	77	81.4	57	14.8	1.69	55.0	13.3	0.40	58.6	2	60.5	3	1	5	6	212						
MN95286	58.4	26.9	54	3	0	2	10	88	82.7	64	13.7	1.77	59.9	11.6	0.43	56.9	3	59.0	2	1	6	4	185						
MN95304	57.2	33.7	72	3	1	5	23	71	77.1	56	16.0	1.82	58.7	14.2	0.41	60.0	3												
MN95305	55.3	28.0	43	2	1	3	8	88	89.8	46	14.9	1.86	50.9	13.7	0.43	56.9	2	59.0	3	3	3	6	215						

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

## RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

3

ELASTIC

DULL

OPEN, THICK

COARSE

6

BUCKY

BRIGHT WHITE

FINE

SILKY

## 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 20

LOCATION: North

NURSERY: AYT

## FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C					LOAF VOL (cc)
					A	B	C	D		PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14 % mb)	ASH	MIX ABS						C	C	C	G	T	
CHRIS	59.0	25.7	68	3	1	3	8	88	87.0	61	15.0	1.73	62.3	14.8	0.47	60.3	3	58.8	2.75	3	3	3	3	4	4	203
MARSHAL	58.5	26.2	54	6	2	8	12	78	73.7	50	13.4	1.83	61.7	12.8	0.42	55.0	2	54.0	3.00	3	3	5	5	2	2	188
WHEATON	56.3	27.1	58	6	3	10	23	64	66.4	51	12.7	1.73	59.5	11.3	0.48	58.2	2	56.5	3.00	3	4	5	5	2	2	180
NORM	57.7	29.9	74	3	3	9	23	65	66.7	58	12.9	1.64	60.1	11.8	0.45	60.0	3	58.0	3.50	3	3	6	6	2	2	200
VERDE	59.5	29.7	76	2	0	9	23	68	67.7	71	13.3	1.69	64.3	12.3	0.41	59.6	2	57.0	2.75	3	3	5	5	4	4	192
BACUP	61.4	27.1	28	7	2	4	9	85	91.5	61	16.4	1.84	57.7	16.1	0.41	65.4	4	61.5	2.25	3	3	5	5	5	5	198
BUTTE 86	58.5	30.9	76	3	2	5	23	70	72.2	69	14.5	1.67	59.3	13.4	0.41	62.1	3	60.0	2.50	2	3	5	5	4	4	188
GRANDIN	60.6	32.3	78	3	1	11	21	67	66.3	65	14.6	1.79	60.3	13.4	0.42	59.3	3	59.0	3.00	3	5	5	5	4	4	208
KULM	58.2	27.4	63	5	4	8	21	67	65.8	63	15.7	1.89	58.7	14.8	0.41	64.4	3	60.5	2.25	3	4	3	5	5	5	200
TRENTON	59.8	32.2	73	2	2	9	22	67	66.3	64	15.0	1.71	58.4	14.2	0.42	61.8	3	61.0	3.50	3	5	5	5	4	4	212
SHARP	60.3	30.2	58	5	3	13	28	56	65.9	54	13.9	1.73	60.7	13.2	0.41	58.6	2	60.0	2.50	2	3	6	6	5	5	190
OXEN	57.6	25.7	54	4	0	2	9	89	85.8	61	14.3	1.63	62.3	12.9	0.38	60.3	4	59.5	3.00	3	5	6	6	5	5	208
FORGE	60.6	29.6	76	3	3	10	27	60	64.3	53	14.4	1.78	59.2	13.1	0.36	60.5	3	59.5	2.75	3	4	5	5	5	5	210
LARS	58.0	29.1	78	2	1	11	24	64	66.3	74	13.2	1.74	61.5	12.1	0.44	56.9	3	58.0	3.75	3	4	3	4	3	4	198
HAMER	58.4	30.9	81	1	4	13	26	57	62.4	76	13.6	1.70	62.0	12.7	0.45	62.1	3	59.0	3.00	3	1	5	5	5	5	204
GUNNER	61.2	27.7	73	3	0	0	11	89	75.7	86	15.8	1.81	58.3	14.3	0.44	59.3	2	60.0	3.00	3	3	3	3	5	5	207
NORA	59.0	29.6	50	5	1	6	21	72	70.0	68	15.3	2.04	57.2	14.3	0.52	57.9	2	58.0	3.25	3	4	3	5	5	5	215
N92-0434	59.9	32.2	76	3	4	13	26	57	64.9	68	14.6	1.67	59.8	13.2	0.41	59.0	3	59.0	3.50	3	4	3	5	5	5	212
SHARPSH	62.2	29.9	73	2	3	21	27	49	59.1	67	14.2	1.65	59.4	13.1	0.38	60.3	2	60.8	2.25	3	3	5	5	5	5	202
2375	61.3	31.3	69	3	0	7	25	68	66.1	71	14.1	1.78	55.4	12.6	0.43	57.9	2	58.0	2.75	3	4	3	5	5	5	208



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## USDA / ARS WHEAT QUALITY LAB

Table 20 (cont)

LOCATION: North

NURSERY: AYT

FARGO, ND

NURSERY:		AYT																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR	WHEAT		FLOUR		FLOUR		MIX	MIX	BAKE	MIX	TIME	D	Rating-----				LOAF
					A	B	C	D	INDEX	HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	ABS	PAT	ABS	(min)	C	C	C	G	T	VOL (cc)	
2370	59.0	27.2	45	8	2	5	27	66	66.1	75	14.3	1.72	55.6	13.2	0.42	59.6	2	57.0	3.25	3	3	6	5	5	214	
AC MAJES	59.2	28.0	66	3	0	9	20	71	69.3	83	15.0	1.83	60.5	14.3	0.41	59.6	3	59.5	2.75	3	5	6	5	5	213	
AC DOMAI	58.0	27.5	66	3	1	5	16	78	76.7	79	16.0	1.89	61.7	15.2	0.46	63.7	3	60.8	2.50	3	3	5	5	5	192	
AC CORA	59.1	27.4	67	2	1	4	15	80	83.0	82	15.5	1.84	62.0	14.9	0.49	60.3	2	60.5	2.25	3	3	3	5	5	205	
KEENE	60.0	27.6	52	6	2	4	12	82	73.4	78	15.1	1.90	58.4	14.0	0.42	60.8	3	60.8	2.50	3	3	3	5	5	203	
SBE0050	58.9	29.1	50	6	2	4	15	79	70.5	70	13.8	1.75	56.5	12.5	0.45	56.5	2	57.5	3.50	3	4	5	5	5	201	
MN93413	57.1	28.8	53	5	1	7	15	77	69.6	68	13.0	1.68	59.8	11.6	0.45	60.3	3	58.0	3.00	3	5	3	4	4	199	
MN91309	57.5	28.1	46	8	2	9	25	64	65.3	69	14.3	1.78	60.2	13.2	0.46	59.3	3	60.0	3.50	3	5	3	4	4	210	
MN93434	60.5	32.7	76	2	0	7	27	66	67.9	81	15.0	1.75	62.6	14.1	0.41	60.3	3	60.5	3.00	3	3	3	5	5	202	
MN94123	58.7	26.6	48	8	3	4	13	80	76.7	84	13.0	1.71	62.6	11.1	0.46	55.5	2	57.0	2.75	2	4	3	4	4	190	
MN94055	59.5	31.9	69	3	7	15	30	48	59.1	60	13.2	1.79	59.9	12.4	0.43	55.3	1	56.5	2.25	2	1	3	4	4	190	
MN94200	59.4	27.1	60	5	1	3	11	85	77.8	84	13.6	1.67	58.7	12.5	0.43	56.9	2	58.8	3.00	2	3	5	5	5	210	
SD3249	60.9	28.4	65	4	3	10	24	63	66.9	74	15.1	1.69	62.7	14.3	0.38	60.8	3	60.8	3.25	3	3	3	5	5	228	
RUSS	58.7	29.6	70	3	1	5	18	76	70.9	73	13.8	1.69	60.7	13.1	0.42	59.3	3	62.5	4.00	3	4	5	5	5	208	
EXP 818J	59.1	29.3	70	3	3	10	26	61	68.2	72	13.1	1.65	65.6	11.9	0.43	58.2	3	60.5	3.25	3	3	3	4	4	218	

DISTRIBUTION: A= % Soft

B= % Seml-Soft

C= % Seml-Hard

D= % Hard

RATINGS:	0						3						6					
	STICKY-WEAK			PLIABLE			ELASTIC			CREAMY			BUCKY			BRIGHT WHITE		
	DOUGH CHAR (DC):			CRUMB COLOR (CC):			CRUMB GRAIN (CG):			CRUMB TEXTURE (CT):			DULL			FINE		
	YELLOW			IRREG, THICK			HARSH			OPEN, THICK			COARSE			SILKY		

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USDA / ARS  
WHEAT QUALITY LAB

Table 21

LOCATION: *South*  
NURSERY: AYT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	LOAF VOL (cc)
					DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)											
					A	B	C	D																	
															INDEX										
CHRIS	58.6	25.8	57	4	1	2	6	91	90.4	70	15.7	1.86	57.7	15.3	0.45	59.6	3	59.5	2.75	4	3	3	4	222	
MARSHAL	57.0	25.2	40	6	1	5	18	76	71.1	63	13.9	2.01	59.4	13.3	0.47	60.0	3	60.0	2.50	3	3	3	4	195	
WHEATON	56.1	28.4	57	3	2	5	23	70	70.7	63	14.3	1.94	58.6	13.6	0.49	62.5	3	62.5	3.00	3	3	3	4	202	
NORM	57.5	30.1	71	3	2	8	22	68	68.4	69	14.3	1.94	55.7	13.5	0.46	62.7	3	62.8	2.75	3	3	6	5	202	
VERDE	58.3	28.8	72	2	1	5	23	71	71.0	75	14.4	1.83	60.0	13.0	0.43	60.8	3	58.5	3.00	3	3	6	4	206	
BACUP	60.6	27.6	33	5	1	5	11	83	89.3	66	16.6	1.97	50.0	16.4	0.41	63.1	3	63.0	2.50	3	3	3	5	212	
BUTTE 86	60.1	31.4	80	1	1	2	16	81	75.6	81	15.4	1.88	55.3	14.8	0.42	63.1	3	61.0	2.75	3	3	3	5	209	
GRANDIN	59.7	33.0	81	2	2	4	20	74	69.1	84	15.5	1.86	54.2	14.8	0.43	61.8	3	62.0	3.00	4	3	3	5	212	
KULM	59.7	28.2	70	3	1	6	19	74	71.6	68	15.4	1.92	57.2	14.9	0.38	61.8	3	62.0	3.00	3	3	3	5	228	
TRENTON	59.8	31.5	74	2	1	6	16	77	70.7	73	14.8	1.82	56.1	14.2	0.42	60.8	3	62.8	3.75	3	5	3	5	216	
SHARP	60.3	30.3	75	2	1	9	21	69	74.7	58	14.8	1.82	58.4	14.1	0.37	60.8	3	60.8	2.25	3	3	3	4	191	
OXEN	59.0	29.2	66	3	0	3	22	75	74.6	73	14.4	1.94	60.9	13.9	0.41	61.8	3	62.0	3.25	4	3	3	4	198	
FORGE	59.7	28.1	57	4	1	6	12	81	72.5	63	14.8	1.93	53.7	13.7	0.39	61.8	3	62.0	3.00	4	3	3	4	180	
LARS	56.8	29.9	80	1	1	3	20	76	70.9	75	14.1	1.92	59.2	13.5	0.48	60.8	4	62.0	3.50	4	3	3	5	198	
HAMER	57.6	30.3	81	1	1	6	23	70	68.5	80	15.1	1.89	58.7	14.0	0.47	62.5	4	62.5	2.50	3	3	3	5	216	
GUNNER	59.0	26.6	58	5	0	1	9	90	81.9	81	16.0	2.08	55.1	15.8	0.47	62.7	3	64.8	2.75	3	4	5	5	228	
NORA	57.6	31.0	50	4	1	5	18	76	72.8	66	15.8	2.36	51.6	14.9	0.54	62.5	3	65.0	3.50	3	4	4	5	205	
N92-0434	58.3	32.6	73	2	2	8	25	65	67.0	64	14.7	1.94	53.1	14.2	0.43	62.5	4	64.5	3.50	3	4	6	5	230	
SHARPSH	61.9	30.2	74	2	2	10	23	65	65.4	66	14.8	1.87	54.7	14.1	0.41	62.1	3	62.0	2.50	3	3	3	4	203	
2375	59.5	30.3	62	4	1	5	24	70	70.0	73	14.3	1.93	55.9	13.7	0.42	58.6	3	62.8	3.25	3	3	4	5	211	

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## USDA / ARS WHEAT QUALITY LAB

Table 21 (cont)

LOCATION: *South*  
NURSERY: *AYT*

### FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO (14% mb)		FLOUR EXT (%)	FLOUR PRO (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					A	B	C	D		INDEX	ASH (14% mb)		ASH (14 % mb)											
2370	58.5	28.2	57	4	2	6	21	71	68.8	71	15.1	1.97	50.2	13.9	0.49	61.4	3	61.5	3.25	3	3	4	5	208
AC MAJES	57.0	27.2	50	6	1	4	15	80	70.4	76	15.9	1.98	57.1	15.6	0.44	61.4	3	61.5	2.75	3	3	3	5	248
AC DOMAI	59.0	29.1	74	2	0	2	14	84	76.2	79	16.2	2.04	58.4	15.4	0.46	62.5	3	62.5	2.25	2	3	3	4	200
AC CORA	57.7	27.6	62	4	0	2	11	87	83.0	74	15.5	1.97	57.0	14.5	0.48	58.6	2	61.5	2.75	2	4	3	5	214
KEENE	58.6	26.5	42	7	0	1	10	89	81.5	79	15.2	1.92	54.4	13.9	0.42	59.0	2	61.0	2.75	3	3	5	5	208
SBE0050	57.0	27.1	41	7	2	5	16	77	72.6	61	14.1	1.92	51.4	13.7	0.46	60.3	4	62.5	3.75	4	5	6	5	212
MN93413	55.3	28.6	45	6	1	6	18	75	68.3	71	13.6	1.96	56.6	12.4	0.50	55.5	3	59.5	3.75	2	4	6	5	202
MN91309	59.5	30.9	57	3	3	12	28	57	64.6	75	14.6	1.87	53.5	14.0	0.43	60.5	3	62.5	3.75	3	3	6	4	183
MN93434	60.3	31.8	75	3	0	6	26	68	71.3	81	15.4	1.89	57.5	14.4	0.44	60.0	3	63.0	3.75	3	3	3	5	205
MN94123	58.3	28.0	60	3	0	1	11	88	86.4	81	13.8	1.89	58.5	12.5	0.47	54.6	2	57.5	3.00	3	4	6	5	200
MN94055	59.4	32.8	74	2	2	15	30	53	61.2	60	14.4	1.94	55.9	14.0	0.43	55.5	2	57.5	2.50	2	4	6	4	206
MN94200	58.2	27.0	57	4	0	2	9	89	81.1	77	14.1	1.87	52.1	13.0	0.56	58.2	3	59.5	3.50	3	3	5	5	210
SD3249	61.6	27.6	65	3	1	5	18	76	74.2	62	15.3	1.93	55.9	14.5	0.39	61.4	3	61.5	3.00	4	3	3	5	210
RUSS	59.0	30.7	78	2	1	1	15	83	74.8	75	14.6	1.89	54.9	13.8	0.43	60.0	3	62.0	3.25	3	4	3	5	204
EXP 818J	58.6	33.8	84	2	1	13	27	59	66.9	66	14.5	1.81	59.3	13.4	0.43	59.6	3	61.5	2.50	3	5	3	5	208

### DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

### RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK  
YELLOW

IRREG, THICK

HARSH

3

PLIABLE

GREY

OPEN, THICK

COARSE

6

BUCKY

BRIGHT WHITE

FINE

SILKY



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USDA / ARS  
WHEAT QUALITY LAB

Table 22

LOCATION: St. Paul, MN

FARGO, ND

NURSERY: AYT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					PRO	ASH (14% mb)	EXT (%)	PRO		ASH (14 % mb)	MIX ABS	MIX PAT												
CHRIS	57.0	27.9	67	3	1	2	10	87	90.4	74	17.1	1.95	52.3	15.8	0.44	60.5	3	64.5	2.75	3	3	3	6	212
2375	58.4	33.3	71	2	1	4	13	82	87.3	60	15.6	1.91	53.0	13.6	0.41	57.9	3	62.8	3.25	3	3	5	6	182
VERDE	57.3	29.5	72	4	1	3	21	75	78.8	69	14.8	1.99	58.2	12.7	0.43	58.6	3	62.8	3.25	3	3	3	6	208
NORM	59.5	35.0	71	2	3	13	28	56	68.5	68	15.1	1.87	55.1	13.7	0.42	59.3	3	66.0	3.50	3	3	3	6	203
MN93262	58.9	35.6	70	2	3	15	29	53	65.6	58	15.0	1.74	52.3	13.2	0.36	61.4	3	67.5	3.25	3	5	3	6	203
MN93377	60.5	33.7	76	2	0	2	19	79	79.6	87	14.6	1.86	53.6	12.5	0.45	55.8	3	64.8	4.25	3	3	3	6	198
MN94053	59.7	32.5	68	3	3	8	24	65	77.8	45	14.3	1.95	50.9	13.1	0.40	56.5	2	64.5	3.00	3	4	3	6	188
MN94151	59.1	31.2	72	4	1	5	27	67	70.4	58	14.5	1.77	51.6	12.9	0.37	60.0	2	62.0	2.50	3	4	6	6	183
MN95002	60.2	30.9	71	3	3	10	22	65	79.7	52	15.9	1.96	50.0	14.3	0.35	56.9	2	64.5	2.75	3	3	3	6	188
MN95023	56.8	32.2	74	2	2	12	25	61	71.2	61	14.9	1.89	53.9	13.0	0.41	58.6	3	65.0	3.00	3	3	3	6	205
MN95051	59.0	29.3	73	2	0	2	14	84	89.2	66	14.7	1.95	56.5	13.0	0.42	60.5	3	66.5	3.50	3	3	4	6	192
MN95084	61.5	33.6	80	2	1	5	24	70	73.1	72	14.5	1.82	57.1	12.2	0.42	55.0	2	64.8	4.00	3	4	5	6	180
MN95102	59.1	32.5	81	2	0	3	12	85	84.9	75	15.8	1.89	54.4	13.7	0.43	63.1	4	65.0	2.50	3	4	5	6	203
MN95124	61.7	29.1	64	3	34	19	13	34	50.5	17	14.7	2.12	35.8	11.5	0.36	55.8	3	64.0	2.00	3	4	3	6	180
MN95201	57.9	30.7	68	3	4	12	25	59	71.2	51	14.4	1.85	58.7	12.6	0.39	56.5	2	60.5	3.00	3	1	3	6	184
MN95211	59.0	33.3	86	4	1	3	14	82	80.6	78	15.5	1.80	55.3	13.2	0.42	60.3	3	61.0	3.50	3	4	3	6	203
MN95222	60.4	33.6	81	1	1	6	29	64	67.0	68	16.3	1.77	59.3	14.9	0.36	63.1	3	63.0	3.00	3	1	3	6	212
MN95223	59.0	33.0	74	2	5	11	30	54	64.6	55	15.6	1.88	54.2	15.0	0.35	61.4	4	64.5	3.00	3	4	5	6	200
MN95229	60.9	32.7	77	2	1	5	21	73	79.6	71	15.6	1.87	53.7	13.7	0.40	60.8	3	67.5	3.25	3	4	3	6	210
MN95230	58.6	29.4	59	4	12	24	27	37	55.7	48	14.5	1.96	48.1	13.7	0.34	60.3	3	63.0	3.00	3	3	4	6	203

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## USDA / ARS WHEAT QUALITY LAB

Table 22 (cont)

LOCATION: St. Paul, MN  
NURSERY: AYT

### FARGO, ND

NURSERY:		AYT		SKWCS HARDNESS										NIR		WHEAT		FLOUR		FLOUR		MIX		BAKE		MIX		LOAF	
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION			HARD- NESS	PRO	ASH (14% mb)	EXT (%)	FLOUR		PRO	ASH (14 % mb)	ABS	PAT	MIX ABS	TIME (min)	D C	Rating-----			C T	VOL (cc)				
					A	B	C					D	INDEX								PRO	ASH	C			C	G		
MN95231	60.1	29.1	64	3	1	5	18	76	76.5	59	14.4	1.85	49.8	11.9	0.42	54.3	2	62.5	4.00	3	3	3	6	6	192				
MN95242	56.2	31.5	70	3	2	12	31	55	65.2	47	14.9	1.86	49.0	13.6	0.41	56.9	2	63.5	2.75	3	1	3	6	6	219				
MN95244	58.7	34.9	81	1	1	4	23	72	72.2	61	15.7	2.10	50.7	13.7	0.62	60.5	3	66.5	2.75	3	3	3	6	6	218				
MN95268	59.4	31.1	61	3	0	3	14	83	77.0	65	15.0	1.81	56.3	13.2	0.42	60.5	4	67.5	5.50	3	3	3	6	6	198				
MN95279	54.4	28.0	48	9	4	10	28	58	65.1	45	15.0	1.83	49.1	13.5	0.39	56.9	3	64.0	4.00	3	3	3	6	6	209				
MN95284	58.2	28.7	60	6	0	7	20	73	78.5	57	14.5	1.82	52.3	13.1	0.41	55.8	2	64.0	4.00	3	3	3	6	6	210				
MN95285	58.6	32.0	67	3	3	10	23	64	73.6	56	14.4	1.76	52.5	13.4	0.39	57.6	3	65.0	3.75	3	3	3	6	6	215				
MN95286	58.7	29.6	64	3	0	3	16	81	72.2	75	14.2	1.95	54.2	11.5	0.44	56.5	2	64.5	2.50	2	1	3	6	6	188				
MN95304	58.1	36.9	86	1	3	10	29	58	70.5	60	16.0	1.88	53.7	14.3	0.38	56.9	3	63.0	3.25	3	3	3	6	6	218				
MN95305	57.0	32.1	76	2	1	3	19	77	85.8	62	15.6	1.94	54.0	14.4	0.38	58.2	3	64.5	2.50	3	1	5	6	6	206				

DISTRIBUTION: A= % Soft

B= % Semi-Soft  
C= % Semi-Hard  
D= % Hard

### RATINGS:

DOUGH CHAR (DC):  
CRUMB COLOR (CC):  
CRUMB GRAIN (CG):  
CRUMB TEXTURE (CT):

0		3		6	
STICKY-WEAK	ELASTIC	PLIABLE	GREY	BUCKY	BRIGHT WHITE
YELLOW	DULL	OPEN, THICK	COARSE	FINE	SILKY
IRREG, THICK					
HARSH					

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USDA / ARS  
WHEAT QUALITY LAB

Table 23

LOCATION: *Langdon, ND*  
NURSERY: *Field Plots*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating-----					LOAF VOL (cc)
					DISTRIBUTION					PRO	ASH (14% mb)	EXT (%)	FLOUR PRO (14 % mb)	ASH (14 % mb)	ABS						PAT	C	C	G	T	
					A	B	C	D																		
AMIDON	55.7	25.5	43	7	0	1	4	95	96.2	89	13.7	1.72	74.5	13.0	0.53	63.1	4	64.0	2.50	2	1	3	5	800		
BUTTE 86	57.3	32.0	81	2	2	7	23	68	74.4	81	15.1	1.88	72.4	13.8	0.54	62.5	3	64.5	2.25	2	3	3	5	760		
GRANDIN	58.6	32.7	87	1	1	9	22	68	74.2	78	14.8	1.84	73.8	13.8	0.50	61.4	3	63.5	2.25	3	3	3	4	790		
KEENE	59.5	28.1	66	2	1	2	13	84	87.9	75	14.4	1.77	73.3	13.7	0.49	61.8	3	64.0	2.00	3	3	3	5	780		
KULM	59.1	30.3	80	1	4	17	32	47	61.0	74	15.7	1.82	74.0	14.7	0.50	63.1	3	65.0	2.00	2	3	3	5	775		
TEAL	54.9	28.6	58	3	2	5	19	74	77.3	66	15.6	1.85	73.9	15.2	0.54	65.7	3	64.8	2.00	2	3	5	4	850		
TRENTON	59.9	33.7	87	0	1	4	16	79	82.5	73	14.9	1.81	75.2	13.9	0.49	61.8	4	64.8	2.50	3	3	5	5	790		
STOA	54.6	26.8	57	5	1	3	14	82	85.3	66	15.2	1.86	72.8	14.3	0.54	63.1	4	65.0	3.25	2	2	3	5	775		
2375	59.9	33.9	79	2	1	10	23	66	70.8	68	14.0	1.73	74.4	13.1	0.51	60.0	3	60.8	2.00	2	3	3	4	720		

DISTRIBUTION: A= % Soft

B= % Seml-Soft

C= % Seml-Hard

D= % Hard

## RATINGS:

DOUGH CHAR (DC):  
CRUMB COLOR (CC):  
CRUMB GRAIN (CG):  
CRUMB TEXTURE (CT):

STICKY-WEAK  
YELLOW  
IRREG, THICK  
HARSH

PLIABLE  
GREY

ELASTIC  
DULL  
OPEN, THICK  
COARSE

CREAMY

BUCKY  
BRIGHT WHITE  
FINE  
SILKY

Table 24

USDA / ARS  
WHEAT QUALITY LAB

FARGO, ND

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LOCATION: McKenzie Co.

NURSERY: Field Plots

NURSERY:		Field Plots		FARCO, INC.																																							
LOCATION: McKenzie Co.				TW		KWT	LG	SM	SKWCS HARDNESS						NIR		WHEAT		FLOUR		FLOUR		MIX		BAKE		MIX		LOAF														
VARIETY				(lb/bu)	(gr)	(%)	(%)	(%)	DISTRIBUTION			HARD-NESS			PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		D		C		C		T		VOL		
									A	B	C	D	INDEX	NESS	PRO	ASH	(14% mb)	(14% mb)	(%)	PRO	ASH	(14 % mb)	MIX	ABS	MIX	PAT	ABS	MIX	TIME	(min)	C	C	C	C	G	T	C	T	(cc)				
AMIDON 1				60.3	27.5	65	4	1	0	7	92	80.9	82	13.5	1.34	73.7	12.8	0.44	61.8	3	64.5	2.25	3	5	3	5	3	5	3	5	3	5	3	5	3	5	3	5	3	5	870		
AMIDON 2				60.2	27.3	59	5	0	2	7	91	79.2	87	12.9	1.42	74.0	12.2	0.46	60.0	3	64.8	2.50	3	5	3	5	3	5	3	5	3	5	3	5	3	5	3	5	3	5	860		
AMIDON 3				59.5	27.0	59	4	1	2	6	91	79.9	83	13.2	1.40	74.3	12.7	0.44	60.8	4	65.5	2.75	3	5	3	5	3	5	3	5	3	5	3	5	3	5	3	5	3	5	865		
Penwawa 1				59.9	26.5	53	5	91	8	1	0	12.7	10	12.1	1.57	70.3	11.3	0.51	55.3	2	60.0	2.75	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	740
Penwawa 2				59.0	27.8	52	4	87	10	2	1	13.9	7	12.1	1.52	70.3	11.0	0.50	52.9	2	60.8	3.00	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	710
Penwawa 3				59.3	27.3	57	4	90	7	2	1	13.6	9	12.0	1.51	69.1	10.9	0.47	54.3	2	60.8	3.00	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	710

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

0				3		6	
RATINGS:				ELASTIC		BUCKY	
DOUGH CHAR (DC):				DULL		BRIGHT WHITE	
CRUMB COLOR (CC):				OPEN, THICK		FINE	
CRUMB GRAIN (CG):				COARSE		SILKY	
CRUMB TEXTURE (CT):							



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USDA / ARS  
WHEAT QUALITY LAB

Table 25

LOCATION: *Minot, ND*  
NURSERY: *Field Plots*

FARGO, ND

VARIETY		TW				KWT				LG				SM				SKWCS				HARDNESS				NIR				WHEAT				FLOUR				FLOUR				MIX				BAKE				MIX				TIME				D				C				C				C				T				LOAF			
		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C		D		INDEX		HARD- NESS		PRO		ASH		EXT		PRO		ASH		ABS		PAT		ABS		TIME		C		C		C		G		T		VOL																															
VARIETY		TW		KWT		LG		SM		A		B		C																																																																			

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

## RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK  
YELLOW

IRREG. THICK  
HARSH

3

PLIABLE

GREY

OPEN, THICK  
COARSE

6

BUCKY  
BRIGHT WHITE  
FINE  
SILKY

# 1997 Spring Wheat Quality Report

## USDA / ARS WHEAT QUALITY LAB

Table 26

LOCATION: Williston, ND  
NURSERY: Field Plots

### FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D			Rating-----			LOAF VOL (cc)
					A	B	C		PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)					C	C	C	C	G	T	
104	58.7	25.9	35	7	3	4	10	83	73.8	15.1	1.80	72.3	14.2	0.52	60.8	4	62.8	2.50	4	5	5	5	5	910
205	58.0	25.2	22	14	2	5	5	88	76.1	14.5	1.82	71.7	14.1	0.54	62.5	4	64.5	2.75	4	5	5	5	5	875
303	58.9	26.0	40	7	1	2	8	89	77.1	14.2	1.74	73.9	13.7	0.52	61.4	4	63.5	2.25	4	5	3	5	5	815
105	56.4	29.2	57	5	77	13	8	2	19.3	14.8	1.96	68.5	13.7	0.61	60.0	3	62.0	2.25	3	3	5	4	4	775
203	59.0	31.4	61	5	86	9	4	1	12.8	13.6	1.94	70.0	12.7	0.58	57.6	3	61.5	2.50	3	3	2	4	4	750
302	59.3	30.6	66	4	85	11	3	1	13.6	13.8	1.93	68.9	12.5	0.57	59.3	3	61.0	2.25	2	3	5	4	4	715
AMIDON 1	58.4	27.6	58	3	2	5	16	77	71.8	16.9	1.77	71.7	16.1	0.52	67.1	3	66.5	2.00	3	5	3	5	5	880
AMIDON 2	59.2	27.1	60	3	1	3	16	80	73.5	16.6	1.70	73.2	16.0	0.52	68.0	3	66.0	2.00	3	5	5	5	5	900
AMIDON 3	58.5	27.7	58	4	2	4	15	79	72.9	16.6	1.79	71.8	16.0	0.52	67.1	3	65.0	1.75	3	5	6	5	5	890
Penwawa 1	60.3	33.0	81	1	90	6	2	2	5.7	15.1	1.97	71.2	14.4	0.62	61.4	3	63.5	2.25	3	5	5	5	5	810
Penwawa 2	59.5	32.7	81	1	92	6	1	1	7.5	15.0	1.88	69.3	13.8	0.58	59.6	4	61.5	2.25	3	5	3	4	4	790
Penwawa 3	61.0	32.9	83	0	94	5	1	0	9.1	15.1	1.83	71.8	13.9	0.61	60.3	3	62.5	2.25	3	5	3	4	4	780

DISTRIBUTION: A= % Soft

B= % Semi-Soft  
C= % Semi-Hard  
D= % Hard

### RATINGS:

DOUGH CHAR (DC):	0			3			6		
	STICKY-WEAK			PLIABLE			ELASTIC		
	YELLOW			GREY			DULL		
	IRREG, THICK			OPEN, THICK			COARSE		
CRUMB COLOR (CC):	CRUMB COLOR (CC):			CRUMB COLOR (CC):			CRUMB COLOR (CC):		
CRUMB GRAIN (CG):	CRUMB GRAIN (CG):			CRUMB GRAIN (CG):			CRUMB GRAIN (CG):		
CRUMB TEXTURE (CT):	CRUMB TEXTURE (CT):			CRUMB TEXTURE (CT):			CRUMB TEXTURE (CT):		
	HARSH			CREAMY			BUCKY		
	FINE			BRIGHT WHITE			SILKY		

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 27

LOCATION: *Minneapolis, MN*  
NURSERY: SPECIAL

FARGO, ND

NURSERY. SPECIAL																													
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS						NIR		WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	Rating						LOAF VOL (cc)		
					DISTRIBUTION			HARD- NESS	PRO	ASH (14% mb)	FLOUR EXT (%)	PRO	ASH (14% mb)	D	C	B					A	C	G	T	C	C		C	C
					A	B	C																						
CHRIS	56.2	27.2	61	5	0	2	7	91	94.9	75	16.5	2.03	54.3	15.0	0.48	56.9	3	62.8	2.25	3	3	3	6	238					
VERDE	57.0	29.6	72	3	1	2	15	82	89.3	60	14.5	1.86	59.8	12.6	0.55	55.5	2	60.5	3.00	3	3	5	5	208					
2375	57.4	31.4	64	2	1	5	12	82	92.6	55	15.2	2.01	52.4	13.0	0.47	55.0	3	63.0	3.00	3	3	5	6	195					
2	58.6	33.1	79	1	2	2	4	92	96.5	86	16.6	1.92	50.9	14.3	0.58	57.6	3	66.0	3.00	3	3	3	6	212					
3	55.8	30.2	56	5	1	8	17	74	80.3	52	15.1	2.07	48.1	13.9	0.44	55.8	3	64.0	3.75	3	3	4	4	210					
5	56.2	31.3	52	5	1	4	17	78	85.7	62	15.6	2.23	49.4	14.0	0.71	55.8	3	66.5	3.25	3	2	3	6	210					
6	54.9	33.9	66	2	2	7	13	78	89.1	54	14.6	2.37	51.5	13.1	0.78	55.3	2	61.0	3.00	3	2	3	4	182					
7	53.0	32.9	57	2	5	7	11	77	86.5	44	14.8	2.72	48.5	13.5	0.90	53.8	2	60.8	2.00	3	2	3	5	180					
8	59.7	33.1	80	2	4	11	23	62	76.1	48	15.0	1.87	52.2	13.6	0.38	56.5	3	58.5	2.25	3	3	3	6	190					
10	59.0	34.6	77	1	1	3	14	82	92.7	67	15.3	1.95	57.7	13.3	0.46	56.5	3	64.5	3.00	3	4	3	6	192					
11	56.2	37.0	83	1	2	14	17	67	79.6	56	14.7	2.03	51.2	12.7	0.52	54.3	1	61.0	2.75	3	3	3	6	198					
14	56.9	29.9	58	3	1	1	8	90	93.2	70	16.1	2.05	51.5	14.7	0.49	57.9	2	62.5	2.25	3	4	3	5	204					
15	59.1	35.5	91	0	0	3	13	84	87.5	60	15.5	1.82	54.0	13.5	0.42	57.6	2	64.8	2.50	3	3	3	5	198					

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:		0						3		6	
		STICKY-WEAK		PLIABLE		ELASTIC		BUCKY			
DOUGH CHAR (DC):		YELLOW		GREY		DULL		BRIGHT WHITE			
CRUMB COLOR (CC):		IRREG, THICK				OPEN, THICK		FINE			
CRUMB GRAIN (CG):		HARSH				COARSE		SILKY			
CRUMB TEXTURE (CT):											

1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 28

LOCATION: St. Paul, MN

NURSERY: Special

FARGO, ND

VARIETY		Special										Nursery																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		TW					KWT					LG					SM					SKWCS					HARDNESS					NIR					WHEAT					FLOUR					MIX					BAKE					MIX					TIME					D					C					C					T					C					LOAF																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		(lb/bu)					(gr)					(%)					(%)					A					B					C					D					INDEX					NESS					(14% mb)					PRO					ASH					EXT					(14 % mb)					ABS					PAT					ABS					(min)					C					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T					C					G					T							



# 1997 Spring Wheat Quality Report

LOCATION: St. Paul, MN

NURSERY: Special

## USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 28 (cont)

VARIETY		TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating				C T	C G	LOAF VOL (cc)
						A	B	C	D	INDEX	HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	C						C	C	G				
RL 21	54.0	35.5	88	1	77	9	5	9	19.7	11	15.4	1.92	39.2	13.0	0.40	55.8	2	62.5	2.00	3	3	3	4	3	4	4	190		
RL 22	53.4	25.8	49	3	10	14	21	55	67.3	36	15.2	1.81	46.6	12.9	0.44	54.3	1	60.5	2.00	1	2	5	2	5	2	2	160		
RL 23	54.3	35.8	92	0	77	13	7	3	23.0	15	15.7	1.92	37.0	13.6	0.37	55.5	2	62.8	2.00	2	5	5	4	5	4	4	184		
RL 24	54.0	28.6	67	2	62	17	9	12	30.7	15	15.1	1.83	38.2	12.0	0.34	53.5	1	60.5	1.75	1	1	3	2	3	2	2	150		
RL 25	56.2	29.9	84	2	2	5	17	76	68.9	53	15.1	1.99	49.0	12.4	0.47	52.6	1	60.5	1.50	1	1	3	2	3	2	2	154		
RL 26	57.9	30.8	80	1	2	4	16	78	69.0	54	14.7	1.93	54.1	11.8	0.52	55.8	1	61.5	1.50	1	4	3	4	3	4	4	169		
RL 27	54.2	24.7	84	4	5	10	17	68	79.3	33	14.8	1.84	47.8	13.0	0.38	53.8	1	61.0	1.75	1	6	3	2	3	2	2	162		
RL 28	55.0	34.7	87	1	74	17	6	3	23.6	11	16.0	2.04	36.7	13.5	0.36	58.2	2	65.0	2.00	3	2	5	5	5	5	5	210		
RL 29	57.4	34.1	82	1	18	16	31	35	50.3	48	15.1	1.85	45.2	12.8	0.40	54.6	2	60.5	1.75	3	4	5	5	5	5	5	187		
RL 30	57.8	32.2	79	2	5	12	31	52	59.4	44	15.0	1.76	49.3	12.8	0.35	53.8	2	60.5	2.25	2	5	5	5	5	5	5	194		
RL 31	60.3	37.3	89	1	63	25	9	3	29.5	23	16.0	1.94	37.0	13.3	0.43	55.0	2	61.5	3.00	3	6	4	5	4	5	5	210		
RL 32	58.1	36.6	90	1	81	14	4	1	22.3	7	14.9	2.04	31.9	11.7	0.33	53.8	2	60.0	2.00	2	6	3	4	3	4	4	182		
RL 33	51.4	26.7	91	2	11	18	31	40	55.3	43	15.5	1.74	40.0	13.3	0.45	55.8	1	58.8	1.75	0	1	3	1	3	1	1	130		
RL 34	56.1	35.9	89	1	66	22	6	6	27.7	20	15.8	1.91	38.3	13.7	0.38	60.0	3	62.5	1.75	3	6	3	4	3	4	4	195		
RL 35	54.7	25.3	54	4	2	8	16	74	86.1	42	15.5	1.86	47.1	13.4	0.39	56.2	1	61.0	1.75	1	1	5	4	4	4	4	148		
RL 36	54.6	27.1	51	3	4	11	26	59	64.7	54	15.7	1.75	45.5	13.1	0.40	59.0	2	65.0	1.75	2	1	3	5	3	5	5	170		
RL 37	56.1	36.1	91	0	72	19	6	3	23.4	14	15.4	1.86	30.0	12.4	0.35	53.5	2	60.8	3.00	3	3	3	4	3	4	4	181		
RL 38	56.6	35.2	89	0	68	21	7	4	26.4	19	15.3	1.86	32.7	12.6	0.35	56.5	2	62.5	2.50	3	3	4	4	4	4	4	194		
RL 39	56.1	36.1	90	1	70	23	5	2	25.1	18	15.4	1.79	36.9	13.1	0.39	55.3	2	63.0	2.75	3	3	3	5	3	5	5	191		
RL 40	55.4	27.5	63	2	4	15	26	55	60.4	50	15.4	1.80	41.2	13.0	0.41	55.5	2	62.5	2.25	3	3	3	5	3	5	5	185		

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## USDA / ARS WHEAT QUALITY LAB

Table 28 (cont)

LOCATION: St. Paul, MN

NURSERY: Special

FARGO, ND

NURSEY, Special																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					A	B	C	D		INDEX	PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14 % mb)	ASH (14 % mb)									
RL 41	56.2	26.8	49	4	17	10	13	60	70.9	32	14.6	1.77	42.2	12.7	0.41	51.6	1	58.5	2.00	1	1	5	2	158
RL 42	56.6	34.3	89	1	78	16	3	3	22.5	16	15.3	1.92	38.1	13.0	0.40	56.5	2	62.0	2.25	3	3	3	5	193
RL 43	58.0	33.7	78	2	40	27	22	11	37.9	19	14.5	2.24	30.0	11.1	0.39	51.9	2	58.5	2.00	3	5	5	4	168
RL 44	54.9	26.5	53	4	67	21	9	3	26.3	10	14.9	1.89	31.3	10.9	0.36	50.2	1	57.5	2.00	1	4	5	2	142
RL 45	52.1	30.0	68	2	8	22	31	39	54.5	51	15.8	1.83	40.2	13.2	0.40	56.9	1	61.5	1.75	1	1	3	1	140
RL 46	58.2	30.8	81	1	0	1	12	87	75.8	76	17.2	1.93	44.5	14.9	0.45	60.3	3	64.8	2.00	3	6	3	6	210
RL 47	55.4	35.2	91	0	75	16	6	3	21.5	17	15.7	1.87	32.9	13.3	0.35	56.5	2	62.8	2.25	3	3	3	5	188
RL 48	59.1	31.5	70	2	65	19	11	5	26.8	15	13.8	1.77	39.0	10.9	0.39	49.9	1	54.5	2.00	1	4	5	1	148
RL 49	59.0	29.5	68	2	59	22	14	5	31.0	17	14.6	1.93	39.7	12.1	0.39	53.5	1	58.5	2.00	1	4	3	1	158
RL 50	57.8	36.0	84	1	71	19	8	2	25.6	22	14.3	1.76	31.4	11.8	0.36	49.2	1	55.0	1.50	1	1	5	1	128
RL 51	57.9	34.6	86	1	0	5	24	71	66.0	52	14.6	1.89	47.6	11.9	0.44	53.2	1	56.8	1.50	2	4	6	4	162
RL 52	52.2	24.8	35	12	6	9	20	65	64.6	54	16.1	1.76	36.2	13.3	0.45	53.2	1	61.0	1.75	1	1	3	2	132
RL 53	54.4	30.4	75	1	3	13	35	49	59.3	48	15.0	1.66	44.4	12.3	0.47	53.2	1	58.5	1.50	1	1	3	1	121
RL 54	54.6	29.0	64	2	16	27	31	26	48.2	37	15.1	1.94	41.1	13.0	0.45	54.3	2	58.5	2.00	2	2	6	5	170
RL 55	57.3	32.8	77	0	2	8	32	58	63.5	63	16.0	1.94	53.3	13.8	0.56	56.9	1	60.8	1.25	1	4	5	5	162
RL 56	54.7	29.7	67	2	4	5	11	80	89.0	47	14.8	1.90	50.5	12.9	0.54	56.9	1	60.8	1.50	1	1	5	2	151
RL 57	57.0	31.3	76	1	2	4	18	76	69.4	71	16.0	1.92	45.5	13.6	0.47	55.8	1	60.0	1.50	1	4	5	4	152
RL 58	56.6	36.4	87	0	79	15	5	1	22.3	17	15.0	1.90	27.8	12.3	0.44	53.2	2							
RL 59	56.3	33.3	89	0	77	16	5	2	22.2	14	15.0	1.93	29.3	12.8	0.37	54.3	2							
RL 60	59.0	30.7	64	3	59	26	11	4	30.2	19	14.5	1.89	37.1	11.7	0.36	49.9	1	56.5	2.25	1	4	5	1	158

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## USDA / ARS WHEAT QUALITY LAB

Table 28 (cont)

LOCATION: St. Paul, MN

NURSERY: Special

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C				LOAF VOL (cc)			
					DISTRIBUTION					PRO		FLOUR							C							
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)						PRO	ASH (14 % mb)	C	C		C	G	T
RL 61	54.0	26.8	41	3	10	22	37	31	51.5	42	14.9	1.81	43.3	13.2	0.40	53.8	1	60.0	2.25	1	3	3	4	4	175	
RL 62	58.4	25.7	41	4	37	25	21	17	42.5	16	14.3	1.90	40.6	11.9	0.39	50.8	1	57.5	2.25	1	2	1	1	1	160	
RL 63	53.9	21.9	15	8	2	3	5	90	105.8	39	15.1	1.77	45.5	13.1	0.46	53.5	1	59.0	1.75	1	1	1	1	1	128	
RL 64	54.6	39.3	93	1	86	10	3	1	17.5	11	15.7	1.90	34.9	13.1	0.37	53.2	2	59.5	2.00	3	5	3	5	5	180	
RL 65	59.0	27.3	51	4	42	28	19	11	37.3	14	14.9	1.75	36.4	12.1	0.35	49.9	1	57.0	2.00	1	4	3	4	4	158	
RL 66	57.9	32.5	80	0	75	17	7	1	20.9	11	14.8	1.77	36.2	12.2	0.34	49.2	1	56.5	2.00	1	4	3	4	4	160	
RL 67	59.8	33.6	81	0	78	16	5	1	20.0	22	16.1	1.76	36.0	13.3	0.32	52.2	2	58.5	2.50	3	5	6	5	5	190	
RL 68	59.0	30.7	64	2	73	16	10	1	22.8	2	14.2	1.84	39.2	11.3	0.35	48.9	1	56.8	2.50	1	4	3	2	2	170	
RL 69	54.8	35.2	89	0	83	10	4	3	19.8	6	15.1	1.98	41.1	12.9	0.38	59.0	3	59.0	2.00	2	6	3	5	5	180	
RL 70	57.4	33.1	86	0	59	18	8	15	34.5	15	16.5	1.84	41.0	14.7	0.46	61.8	4	62.5	2.00	3	3	3	6	6	197	
RL 71	57.6	34.9	85	0	3	18	38	41	56.7	51	14.8	1.50	51.9	12.7	0.40	56.5	2	60.5	2.00	2	3	5	5	5	182	
RL 72	57.8	31.1	76	1	2	5	23	70	66.1	51	14.5	1.95	48.3	12.2	0.46	54.6	1	54.8	1.75	1	1	5	2	2	148	
RL 73	59.4	35.4	87	0	62	29	7	2	28.9	17	13.7	1.89	37.0	11.5	0.34	54.3	2	58.5	1.75	2	1	5	4	4	158	
RL 74	53.0	27.9	61	2	17	21	34	28	49.7	40	15.2	1.60	38.4	13.0	0.47	57.9	2	62.5	2.25	0	1	1	1	1	124	
RL 75	56.4	26.8	31	5	5	15	22	58	68.0	33	15.1	1.96	48.3	13.5	0.42	58.2	2	62.5	2.25	2	4	5	5	5	170	
RL 76	55.1	29.9	53	1	35	16	10	39	53.8	18	14.8	1.69	39.0	12.2	0.37	54.3	2	58.5	2.00	1	1	5	1	5	138	
RL 77	55.7	33.7	89	0	86	10	3	1	15.9	7	15.0	1.99	38.7	13.0	0.37	57.9	3	60.0	2.00	3	3	5	5	5	190	
RL 78	54.0	28.1	61	2	16	23	29	32	49.7	33	14.7	1.84	43.1	12.3	0.50	57.9	2	60.5	2.00	1	4	5	4	4	148	
RL 79	52.3	25.5	42	4	12	18	27	43	53.9	37	15.1	1.93	38.3	12.9	0.46	55.8	1	60.8	2.50	1	1	3	2	2	148	
RL 80	56.0	34.5	90	0	68	23	7	2	26.4	10	16.1	1.98	30.6	12.8	0.31	57.9	3									

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## USDA / ARS WHEAT QUALITY LAB

Table 28 (cont)

LOCATION: St. Paul, MN

NURSERY: Special

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating					LOAF VOL (cc)
					A	B	C	D		PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)						-----	C	C	C	G	T
RL 81	54.8	29.5	72	2	5	17	29	49	60.9	48	15.6	2.08	45.9	13.8	0.79	60.3	2	62.8	1.75	1	2	3	5	5	170
RL 82	52.8	26.0	47	3	9	16	19	56	64.8	34	14.6	2.29	43.8	13.1	0.49	55.8	2	61.5	2.50	1	1	1	1	1	150
RL 83	57.8	32.3	80	1	68	22	8	2	26.4	14	14.5	1.80	30.5	11.9	0.38	51.6	1	56.5	2.00	1	4	3	1	1	150
RL 84	58.2	34.9	82	0	71	21	7	1	25.4	14	13.9	1.82	22.4	9.9	0.49										
RL 85	55.4	35.3	91	0	82	12	4	2	19.6	7	15.5	1.93	26.6	12.8	0.40	55.5	3								
RL 86	55.6	35.1	88	0	73	18	7	2	23.2	12	15.7	2.08	31.3	13.1	0.41	55.5	2	60.8	2.25	3	3	5	5	5	178
RL 87	58.4	34.6	80	1	1	5	26	68	64.4	47	14.8	1.82	53.2	12.7	0.48	55.0	2	61.5	2.25	2	3	6	6	6	172
RL 88	59.0	29.7	58	4	61	26	9	4	28.2	14	14.3	1.93	38.5	11.2	0.39	50.8	1	57.0	2.00	1	4	3	2	2	150
RL 89	55.1	37.1	89	0	85	10	2	3	17.5	6	15.1	1.79	33.0	12.9	0.34	55.3	3	60.5	2.25	2	5	5	5	5	170
RL 90	54.6	35.4	89	1	87	9	2	2	16.4	6	15.4	1.97	31.0	12.7	0.36	53.2	2	58.5	2.25	2	5	6	6	6	182
RL 91	57.2	31.5	77	1	41	16	13	30	42.8	31	15.5	1.92	39.9	12.5	0.36	53.5	2	59.5	2.25	2	3	3	5	5	178
RL 92	55.4	36.0	89	0	75	15	7	3	23.2	17	15.7	2.07	32.4	13.2	0.48	55.8	2	61.0	2.50	2	3	3	6	6	188
RL 93	56.9	32.6	84	0	74	18	5	3	23.5	7	14.9	1.95	37.6	13.2	0.38	56.5	3	60.5	2.25	3	3	3	5	5	190
RL 94	56.6	26.6	52	3	3	7	18	72	75.3	54	15.5	1.73	48.1	13.2	0.48	57.9	3	62.5	2.00	2	5	3	5	5	180
RL 95	58.9	31.2	72	3	46	32	15	7	35.3	14	14.2	1.99	27.8	11.4	0.40	51.6	2								
RL 96	57.4	32.7	84	0	21	12	22	45	53.3	40	15.1	1.92	39.8	12.4	0.36	55.0	2	59.0	2.00	2	3	6	5	5	182
RL 97	54.2	28.8	56	3	17	21	30	32	50.2	36	14.4	1.83	37.8	12.8	0.39	53.8	2	58.8	2.25	1	3	3	4	4	170
RL 98	52.2	24.6	27	16	11	11	20	58	60.3	43	16.7	1.96	34.9	13.8	0.49	55.0	2	56.8	2.25	2	1	1	1	1	118
RL 99	58.8	31.2	70	2	76	14	8	2	21.3	8	13.6	1.91	32.9	11.0	0.39	51.3	1	56.5	2.00	2	4	3	1	1	152
RL 100	57.8	29.4	68	1	1	4	16	79	70.4	59	15.7	1.94	49.5	13.2	0.47	54.6	1	56.0	1.50	1	1	5	1	1	134



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USDA / ARS  
WHEAT QUALITY LAB

Table 28 (cont)

LOCATION: St. Paul, MN

FARGO, ND

NURSERY: Special

NURSERY		Special																							
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS								NIR		WHEAT		FLOUR		FLOUR		MIX ABS	BAKE ABS	MIX TIME (min)	MIX TIME (min)	LOAF VOL (cc)
					DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)	MIX ABS	PAT										
					A	B	C	D								INDEX									
RL 101	55.9	34.7	91	0	86	9	3	2	17.6	23	14.7	1.89	29.2	12.4	0.33	54.3	2								
RL 102	57.9	34.0	82	1	77	17	5	1	22.3	18	14.8	1.86	23.7	12.0	0.34	52.9	2								
RL 105	58.1	36.2	85	0	81	14	4	1	18.8	20	14.1	1.92	24.3	10.7	0.31	48.2	1								
RL 106	56.4	35.3	92	0	72	18	5	5	25.3	27	15.2	1.97	35.2	12.9	0.36	55.8	2	60.0	2.50	3	5	3	5	181	
RL 107	54.3	34.7	85	0	69	21	8	2	25.9	11	16.0	1.99	37.3	13.7	0.45	56.9	2	62.8	2.50	2	4	6	4	188	
RL 108	58.4	35.1	79	1	1	6	25	68	65.7	68	15.6	1.89	55.3	13.3	0.49	56.9	1	59.5	1.50	1	4	5	5	160	
RL 109	55.5	30.8	63	4	3	15	33	49	62.4	53	14.5	1.82	50.2	12.5	0.44	57.9	2	61.5	2.25	2	4	3	6	168	
RL 110	58.4	32.9	76	2	0	2	17	81	70.4	76	15.1	1.86	51.0	12.6	0.48	53.8	1	58.5	1.50	1	1	3	5	160	
Wuhan	56.5	33.3	80	1	46	14	12	28	39.2	24	14.1	1.92	36.5	11.7	0.43	55.0	2	61.0	2.50	2	4	6	5	168	
Norm	59.3	36.1	92	0	1	3	18	78	67.6	72	15.2	1.93	46.7	13.1	0.46	59.6	4	63.0	2.00	3	5	3	6	205	
Roblin	57.1	35.0	87	2	12	31	32	25	50.9	54	16.7	1.96	53.6	15.5	0.39	62.1	4	64.5	2.25	3	2	3	6	220	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

## RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

FINE

SILKY

6

3

0

# 1997 Spring Wheat Quality Report

## USDA / ARS WHEAT QUALITY LAB

Table 29

LOCATION: Crookston, MN

NURSERY: Specials

FARGO, ND

NURSERY - Specials																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	LOAF VOL (cc)
					DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	FLOUR											
					A	B	C	D					INDEX	PRO	ASH (14 % mb)									
BH-M1	56.9	33.0	68	4	5	9	20	66	76.0	58	13.1	1.82	49.3	11.5	0.50	51.6	1	56.8	2.00	1	1	3	4	165
BH-M2	51.6	31.9	80	1	63	15	8	14	30.3	6	14.0	2.36	32.7	12.5	0.48	50.8	1	56.0	2.75	2	4	3	4	170
BH-M3	51.8	31.9	82	1	71	14	6	9	25.3	17	14.1	1.93	31.9	12.5	0.46	50.8	1	54.5	2.50	1	3	3	2	175
BH-M4	52.4	31.4	83	1	56	18	8	18	34.7	7	14.2	2.05	35.0	12.8	0.46	51.6	1	56.5	2.25	1	4	3	4	178
BH-M5	52.5	33.2	89	1	65	15	8	12	27.8	10	13.9	2.04	35.6	12.6	0.44	51.3	1	55.0	2.25	1	4	3	4	171
IAC18-M	57.6	28.5	54	2	33	23	15	29	48.7	10	14.7	1.90	32.2	13.0	0.43	52.6	2	58.8	2.50	2	4	3	4	188
IAC17-M	58.7	31.4	59	3	34	19	14	33	50.2	15	13.3	1.74	34.5	11.3	0.38	55.8	2	56.0	1.50	1	1	3	2	160
IAC24-M	54.1	28.1	61	3	7	4	10	79	81.1	44	14.9	1.88	44.7	13.9	0.48	59.6	3	61.5	2.25	3	4	3	4	200
ANA-M1	54.2	25.8	17	18	4	8	15	73	82.2	48	12.8	1.72	54.2	10.9	0.45	50.8	1	54.8	2.50	1	1	3	2	182
ANA-M2	54.2	22.9	7	30	3	7	8	82	91.4	51	12.9	1.73	52.3	11.1	0.43	50.8	1	56.8	2.25	1	4	3	2	182
ANA-M3	53.4	24.3	11	27	8	5	10	77	89.0	39	12.9	1.84	47.7	11.0	0.44	51.9	1	53.5	2.00	1	4	3	2	175
BH1146	57.8	31.5	73	2	30	24	11	35	52.1	18	14.9	1.79	42.6	13.0	0.39	55.8	2							
IAC24	54.2	29.0	64	4	4	7	15	74	79.1	52	15.4	1.89	37.5	14.1	0.44	59.0	2	59.0	1.75	2	4	5	5	192
IAC18	58.2	32.8	69	2	31	18	15	36	53.5	25	14.6	1.81	35.6	12.9	0.37	51.3	1	55.0	1.50	1	1	1	1	150
IAC17	58.8	32.2	68	3	30	20	13	37	54.7	18	14.5	1.76	37.6	12.6	0.36	50.8	1	54.0	1.50	1	1	3	1	142
ANAHUAC	55.3	28.6	31	12	4	11	16	69	77.3	44	13.6	1.76	57.1	12.0	0.44	51.3	2	58.5	3.75	2	5	5	5	200
BAJIO-PLU	47.8	30.1	53	7	91	5	2	2	-4.2	14	13.0	1.84	35.6	11.3	0.49	50.8	1	56.8	2.00	1	1	3	1	160
TOPABOR	53.8	31.1	67	3	3	3	18	76	77.1	42	13.7	1.87	49.3	11.7	0.48	50.2	1	56.8	2.50	1	3	6	5	191
CENTAUR	47.8	28.9	49	7	94	3	1	2	-5.6	6	13.2	1.79	35.5	11.0	0.50	49.8	1	54.8	2.50	1	1	3	1	155
SALAMAN	49.4	26.6	42	9	69	9	3	19	22.8	10	13.4	2.04	38.6	11.9	0.50	50.8	1	57.0	3.25	1	1	5	1	182

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USDA / ARS  
WHEAT QUALITY LAB

Table 29 (cont)

LOCATION: Crookston, MN  
NURSERY: Specials

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					A	B	C	D		PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)									

BAJIO	55.3	26.4	29	17	11	12	22	55	65.0	39	13.9	1.88	57.7	12.1	0.45	53.5	2	54.5	3	3	6	4	200
CHECK	57.2	30.0	82	3	2	8	26	64	69.8	69	14.5	1.76	62.8	12.4	0.42	56.9	2	56.5	2	3	6	4	190

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

		0		3		6	
RATINGS:	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY		
	CRUMB COLOR (CC):	YELLOW	GREY	DULL	BRIGHT WHITE		
	CRUMB GRAIN (CG):	IRREG, THICK	OPEN, THICK	COARSE	FINE		
	CRUMB TEXTURE (CT):	HARSH			SILKY		

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USDA / ARS  
WHEAT QUALITY LAB

Table 30

LOCATION: St. Paul, MN

NURSERY: Specials

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)		FLOUR PRO ASH (14% mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					A	B	C	D		PRO (14% mb)	ASH (14% mb)													
BH-M1	58.6	37.9	81	1	4	6	25	65	62.2	62	14.0	1.92	57.2	11.7	0.53	53.2	1	59.0	2.75	2	4	5	5	170
BH-M2	51.1	29.9	83	2	92	6	1	1	7.3	9	13.6	2.11	43.2	11.8	0.44	51.3	2	58.0	3.00	2	4	5	5	178
BH-M3	51.4	29.4	74	2	88	5	4	3	12.1	8	14.0	1.96	37.4	12.1	0.42	50.8	2	56.8	3.00	2	4	3	5	178
BH-M4	51.4	30.6	74	2	87	7	2	4	10.9	9	14.0	2.13	43.8	11.9	0.47	50.2	2	58.5	2.75	2	4	5	5	175
BH-M5	49.9	28.5	68	3	94	4	1	1	7.6	4	14.1	2.24	36.4	12.4	0.46	51.6	2	57.5	2.75	2	4	3	4	168
IAC18-M	57.9	29.6	61	3	61	20	9	10	30.0	11	15.3	2.18	40.4	13.7	0.46	53.5	2	61.5	3.00	2	3	6	6	184
IAC17-M	55.7	30.3	57	5	78	15	4	3	20.8	9	15.1	2.07	38.1	13.0	0.41	55.5	2	61.5	1.75	2	1	3	6	174
IAC24-M	54.2	28.2	66	4	10	5	12	73	64.9	42	14.8	2.00	47.8	13.0	0.49	58.2	3	64.5	2.25	3	3	3	6	192
ANA-M1	56.8	31.2	48	6	4	9	27	60	66.0	55	13.0	1.85	54.3	10.9	0.48	50.8	1	58.8	2.50	2	3	5	5	173
ANA-M2	56.6	29.9	41	6	5	11	25	59	66.2	52	13.8	1.91	54.3	11.3	0.41	53.2	1	61.0	2.25	2	1	5	5	182
ANA-M3	57.7	35.1	45	5	85	8	4	3	17.2	18	16.2	2.13	51.9	11.3	0.40	51.9	2	60.0	2.75	2	4	5	5	180
BH1146	57.8	30.4	74	3	8	6	23	63	61.3	53	15.3	1.92	41.9	14.3	0.37	55.5	2	59.0	1.75	2	4	3	4	178
IAC24	55.4	34.0	71	2	78	11	5	6	20.9	22	15.7	2.18	45.7	13.6	0.48	59.3	3	65.0	2.25	3	3	3	6	198
IAC18	57.6	33.6	67	3	80	12	4	4	20.0	23	15.5	2.15	23.2	13.4	0.39	55.5	2							
IAC17	58.0	35.4	76	1	81	10	7	2	19.9	11	15.9	1.88	33.3	13.5	0.37	55.0	2	62.0	1.50	2	4	3	4	172
ANAHUAC	56.6	33.8	72	2	5	13	36	46	57.7	50	13.9	1.89	50.0	11.5	0.42	51.3	2	57.0	3.50	2	5	5	4	185
BAJIO-PLU	50.9	37.8	81	1	98	1	0	1	-10.3	16	14.3	1.83	37.7	11.5	0.35	52.6	1	58.8	2.50	2	4	3	5	174
TOPABOR	52.5	32.6	80	1	9	15	31	45	58.0	36	14.3	2.09	49.0	12.1	0.47	54.6	1	62.8	2.50	2	4	5	6	192
SALAMAN	54.1	36.4	83	1	80	5	4	11	12.6	22	13.9	2.21	42.1	11.5	0.45	51.9	2	60.0	2.75	3	3	3	6	183
BAJIO 66	57.1	31.5	57	4	18	33	27	22	47.5	43	14.8	1.87	52.1	12.5	0.40	54.3	2	58.5	3.00	3	3	5	6	200



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WHEAT QUALITY LAB

Table 30 (cont)

LOCATION: St. Paul, MN  
NURSERY: Specials

FARGO, ND

NURSERY:		Specials																						
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)		
					A	B	C	D		INDEX	PRO	ASH (14% mb)	FLOUR EXT (%)										PRO	ASH (14 % mb)
CHECK	58.5	31.3	80	1	1	6	19	74	66.5	69	14.8	1.94	59.9	12.4	0.44	56.9	2	60.8	3.00	3	5	3	6	220

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

		0		3		6	
RATINGS:	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	CREAMY	BUCKY	
	CRUMB COLOR (CC):	YELLOW	GREY	DULL		BRIGHT WHITE	
	CRUMB GRAIN (CG):	IRREG, THICK		OPEN, THICK		FINE	
	CRUMB TEXTURE (CT):	HARSH		COARSE		SILKY	

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USDA / ARS  
WHEAT QUALITY LAB

Table 31

LOCATION: *Brookings, SD*  
NURSERY: PPY

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO (14% mb)	ASH (14% mb)							
					A	B	C	D					INDEX					
RUSS	59.1	32.0	75	4	0	8	24	68	77.5	77	14.6	1.79	65.4	13.7	0.43	59.0	3	400
OXEN	60.5	29.4	63	4	0	3	15	82	86.0	85	14.5	1.73	69.2	13.7	0.37	58.6	3	400
SD3430	62.4	32.4	71	4	1	5	22	72	79.5	78	14.1	1.70	66.0	13.2	0.43	59.3	3	400
SD3432	61.3	32.4	80	2	1	10	20	69	77.8	78	14.7	1.81	65.1	14.1	0.35	58.2	2	378
SD34333	59.0	31.7	73	3	5	12	21	62	75.5	59	14.2	1.68	67.0	13.5	0.35	57.3	2	400
SD3437	61.0	32.9	79	4	32	29	15	24	46.2	27	14.3	1.73	56.6	13.0	0.32	53.2	2	385
SD3440	60.2	34.5	80	2	3	16	23	58	73.4	63	14.8	1.74	64.8	13.8	0.36	62.5	2	378
SD3446	60.4	32.8	71	4	10	24	18	48	62.5	39	13.6	1.80	63.2	12.7	0.41	57.9	3	400
SD3449	61.5	28.8	64	5	1	10	17	72	78.9	55	14.7	1.77	61.7	13.7	0.41	64.0	5	390
SD3452	58.9	33.6	81	2	1	5	22	72	80.6	67	15.7	1.83	62.3	14.8	0.43	59.0	1	279
SD3455	61.2	32.7	65	4	4	6	26	64	70.2	58	14.2	1.83	64.5	13.2	0.38	59.6	3	338
SD3457	58.8	33.0	76	3	1	5	21	73	78.8	80	14.8	1.76	62.3	13.4	0.40	62.1	10	400
SD3458	60.6	33.7	74	3	1	13	32	54	66.1	59	13.6	1.70	64.2	12.7	0.39	56.9	2	291

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS  
WHEAT QUALITY LAB

Table 32

LOCATION: *Groton, SD*

NURSERY: PPY

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO (14% mb)	ASH (14% mb)		PRO (14 % mb)	ASH				
RUSS	59.2	29.0	72	8	0	3	16	81	75.2	68	14.7	1.73	69.5	14.0	0.42	62.7	4	400
OXEN	58.2	27.5	52	3	1	7	20	72	70.1	61	14.5	1.45	71.4	13.5	0.38	60.5	3	400
SD3430	59.5	27.3	50	3	1	5	8	86	78.7	69	13.8	1.59	67.3	12.8	0.42	59.0	3	381
SD3432	59.7	29.0	66	0	2	13	17	68	75.6	65	15.7	1.63	67.6	14.7	0.38	60.8	3	400
SD3433	61.4	29.0	59	2	3	9	20	68	72.0	59	15.0	1.66	71.0	14.1	0.39	59.3	2	353
SD3437	60.6	30.1	74	1	39	24	15	22	44.6	30	15.0	1.57	62.5	13.7	0.35	60.3	3	379
SD3440	60.0	30.8	74	1	3	13	21	63	71.7	59	15.9	1.66	67.3	15.0	0.38	61.1	2	400
SD3446	59.1	31.3	75	1	13	27	24	36	55.8	44	14.7	1.77	68.9	14.0	0.43	59.6	5	400
SD3449	59.1	27.8	46	3	4	12	19	65	70.0	46	14.9	1.63	67.6	14.3	0.43	61.4	5	374
SD3452	58.6	30.2	75	1	2	6	16	76	79.8	70	16.0	1.71	66.7	15.1	0.43	58.6	2	272
SD3455	61.0	29.1	58	2	2	10	21	67	71.1	62	15.0	1.60	66.4	13.8	0.36	61.1	3	400
SD3457	56.6	26.8	56	3	0	1	11	88	83.8	77	15.0	1.55	64.8	13.9	0.39	61.1	10	387
SD3458	61.0	29.8	56	3	0	3	20	77	74.4	67	13.6	1.52	66.0	12.7	0.39	56.9	1	300

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS  
WHEAT QUALITY LAB

Table 33

LOCATION: *Brookings, SD*

NURSERY: *PYT*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR		WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D	INDEX	HARD- NESS	PRO	ASH (14% mb)		PRO	ASH (14 % mb)			
RUSS	60.7	32.9	84	2	1	6	23	70	74.6	75	14.0	1.77	66.0	13.2	0.41	58.2	3	400
OXEN	60.2	30.1	67	4	1	4	20	75	79.7	74	14.1	1.68	66.7	13.2	0.37	59.0	3	378
SD3400	60.2	27.8	62	5	1	2	6	91	99.4	76	14.6	1.81	63.2	13.7	0.42	58.6	3	146
SD3405	59.0	28.3	66	7	1	3	11	85	85.9	74	14.0	1.76	64.8	12.8	0.40	56.5	2	379
SD3407	60.8	37.4	82	2	1	11	18	70	81.9	80	13.5	1.68	65.1	12.4	0.38	56.2	3	388
SD3410	59.0	32.6	74	5	0	4	10	86	96.0	73	15.0	1.93	63.6	13.7	0.42	56.5	3	387
SD3411	59.4	27.9	68	6	0	1	8	91	98.2	61	13.5	1.75	62.3	12.5	0.41	51.6	2	340
SD3412	59.7	32.0	69	5	4	12	23	61	70.6	47	13.3	1.65	62.9	12.6	0.40	56.5	2	400
SD3413	60.5	28.8	64	9	2	9	12	77	87.7	54	13.6	1.75	65.4	12.3	0.36	54.6	2	175
SD3414	61.0	27.8	52	8	1	3	7	89	96.6	72	14.3	1.67	66.4	13.4	0.39	56.5	3	400
SD3415	61.4	31.1	79	4	1	3	7	89	95.3	73	14.3	1.70	63.5	13.1	0.38	57.6	3	400
SD3416	60.5	33.2	75	4	1	11	29	59	69.1	73	14.0	1.72	67.6	13.4	0.37	57.3	4	400
SD3417	60.1	24.4	48	1	1	3	16	80	78.0	68	13.5	1.74	65.4	12.9	0.38	57.6	3	400
SD3419	60.5	35.0	75	4	1	11	21	67	75.4	71	14.4	1.75	64.2	13.1	0.37	58.2	4	400
SD3420	62.3	29.6	68	5	1	7	18	74	79.2	77	14.0	1.80	65.7	12.9	0.39	56.2	3	400
SD3422	61.3	29.6	66	5	0	3	12	85	97.1	73	15.4	1.83	62.9	14.1	0.38	58.2	3	223
SD3423	59.8	33.1	76	4	0	6	15	79	90.7	76	15.1	1.71	65.7	14.1	0.41	59.6	3	396
SD3429	62.0	29.2	70	5	0	2	13	85	89.6	70	13.5	1.71	62.6	12.3	0.38	57.3	3	400

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard



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WHEAT QUALITY LAB

Table 34

LOCATION: *Groton, SD*

NURSERY: *PYT*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO (14% mb)	ASH (14% mb)		PRO (14 % mb)	ASH				
					A	B	C	D										INDEX
RUSS	59.6	29.9	71	2	1	4	18	77	76.4	76	14.6	1.69	65.7	13.8	0.40	60.0	3	400
OXEN	58.8	26.9	54	3	1	2	19	78	75.3	75	14.4	1.61	67.3	13.4	0.34	57.6	3	380
SD3400	60.2	25.9	20	5	0	2	5	93	88.9	81	15.0	1.58	61.0	13.7	0.38	57.6	3	400
SD3405	59.8	26.8	48	4	0	2	6	92	88.2	84	15.2	1.68	64.5	14.0	0.36	57.9	3	356
SD3407	59.0	30.2	59	2	0	5	10	85	90.4	81	13.9	1.51	62.6	12.5	0.36	56.2	3	400
SD3410	58.5	29.9	54	2	0	4	11	85	82.2	82	16.0	1.75	63.6	15.1	0.39	59.3	3	400
SD3411	57.6	27.0	35	4	2	5	16	77	78.4	64	15.0	1.60	57.4	13.5	0.34	55.0	3	380
SD3412	58.4	28.1	43	4	3	11	20	67	67.7	50	13.9	1.56	64.2	13.0	0.37	55.5	2	400
SD3413	57.4	23.0	10	15	3	8	24	65	72.7	52	14.4	1.69	62.9	13.2	0.37	56.2	2	331
SD3414	60.5	24.7	16	6	1	1	7	91	91.0	73	14.6	1.52	66.3	13.7	0.38	56.5	3	400
SD3415	59.8	24.7	39	4	1	3	7	89	84.2	68	14.3	1.59	63.9	13.1	0.37	53.5	3	400
SD3416	59.8	29.2	64	3	0	8	21	71	69.6	65	14.4	1.58	63.8	Num				400
SD3417	59.9	22.0	7	11	3	6	15	76	71.2	63	13.8	1.57	67.3	13.1	0.37	57.6	3	400
SD3419	60.5	32.1	71	2	1	8	22	69	72.2	67	15.0	1.66	66.7	13.8	0.34	57.3	3	400
SD3420	61.8	26.9	29	5	2	4	13	81	82.9	68	14.4	1.54	65.4	13.1	0.37	53.5	2	400
SD3422	61.7	26.3	28	4	1	6	11	82	84.9	77	15.1	1.72	63.6	14.0	0.40	57.3	2	375
SD3423	58.9	30.1	60	3	3	7	16	74	77.6	81	15.5	1.70	64.2	14.7	0.38	57.9	2	390
SD3429	59.3	27.3	22	5	3	5	7	85	84.3	71	14.0	1.51	62.6	12.9	0.38	55.0	2	400

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 35

LOCATION: *St. Paul, MN*

NURSERY: PY-1

FARGO, ND

NURSEY: P-Y-1																		
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	58.9	27.6	67	3	0	6	14	80	85.6	64	15.2	1.74	68.2	14.8	0.44	62.1	3	400
VERDE	58.7	30.5	71	3	3	10	24	63	69.3	66	14.1	1.80	69.8	13.4	0.44	60.8	3	334
2375	59.1	31.4	64	4	2	6	18	74	81.5	69	14.8	1.93	67.9	13.8	0.46	60.3	3	400
MN97001	58.6	33.6	67	2	1	7	25	67	70.3	85	14.2	1.74	69.4	13.0	0.44	62.1	4	370
MN97003	59.2	31.6	61	3	4	11	21	64	73.6	63	14.7	1.73	68.2	13.9	0.45	62.1	3	400
MN97004	58.8	28.6	62	3	2	8	22	68	75.0	46	13.3	1.79	56.8	12.1	0.39	56.2	2	400
MN97006	58.2	30.2	67	3	3	11	25	61	72.0	46	13.4	1.81	70.8	12.7	0.43	57.3	2	400
MN97008	59.2	29.1	64	3	0	2	10	88	84.9	70	16.0	1.82	67.3	15.1	0.47	63.1	3	400
MN97009	57.0	29.5	56	5	9	16	27	48	64.9	58	14.7	1.72	68.9	13.6	0.41	62.1	4	400
MN97010	59.0	30.9	66	4	2	6	17	75	80.7	67	14.3	1.75	70.4	13.3	0.48	62.5	3	361

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 36

LOCATION: St. Paul, MN  
NURSERY: PY-2

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C		PRO	ASH		PRO	ASH			

CHRIS	58.4	27.1	67	3	8	12	20	60	72.8	66	15.3	1.75	67.6	14.8	0.44	60.8	3	400
VERDE	56.8	28.9	69	3	1	3	12	84	78.7	71	14.2	1.93	69.4	13.4	0.45	58.2	2	370
2375	59.4	30.8	61	3	1	4	19	76	79.1	62	14.9	1.80	67.9	14.0	0.46	59.3	2	400
MN97022	57.8	29.2	62	4	1	9	23	67	70.7	53	13.6	1.74	68.2	13.0	0.43	59.3	2	391
MN97039	58.6	28.8	51	5	3	8	24	65	73.3	45	14.1	1.85	68.2	13.1	0.44	57.9	2	400

DISTRIBUTION:    A=% Soft  
                          B=% Semt-Soft  
                          C=% Semt-Hard  
                          D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 37

LOCATION: St. Paul, MN		FARGO, ND																
NURSERY: PY-3																		
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
CHRIS	58.3	27.0	67	3	1	2	12	85	88.9	75	15.3	1.77	67.3	14.9	0.46	61.1	3	371
VERDE	56.1	27.4	63	5	0	1	16	83	78.7	69	14.1	1.87	68.9	13.2	0.46	59.0	2	302
2375	58.2	30.9	59	4	1	9	21	69	76.4	63	14.8	1.85	67.0	14.1	0.45	60.5	3	400
MN97045	57.7	29.7	69	4	1	10	23	66	71.4	75	13.4	1.79	67.3	12.5	0.42	58.2	2	389
MN97051	55.1	27.9	54	6	2	7	25	66	70.6	53	13.5	1.80	66.0	12.4	0.46	56.9	2	400
MN97060	57.0	26.1	42	8	1	3	19	77	74.6	54	13.5	1.89	63.8	12.6	0.44	55.0	1	372
MN97063	57.4	28.8	63	4	2	6	20	72	77.4	69	14.0	1.76	67.6	13.0	0.43	58.6	4	400

DISTRIBUTION:

A=% Soft

B=% Semt-Soft

C=% Seml-Hard

D=% Hard



## 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 38

LOCATION: St. Paul, MN  
NURSERY: PY-4

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		INDEX	PRO		ASH (14% mb)	PRO				ASH (14 % mb)
CHRIS	58.3	26.7	63	3	0	5	13	82	83.7	81	15.3	1.77	64.5	14.8	0.44	60.3	3	400
VERDE	58.0	29.0	70	2	2	3	21	74	73.7	81	14.0	1.80	68.9	13.2	0.42	58.6	3	331
2375	58.8	33.1	63	3	5	14	25	56	67.1	79	14.9	1.81	66.0	13.7	0.43	59.3	3	400
MN97072	56.6	25.0	22	10	2	8	25	65	66.3	65	15.8	1.89	63.9	15.0	0.42	59.3	3	400
MN97073	58.1	27.8	44	5	2	4	22	72	68.9	70	15.4	1.84	62.0	14.4	0.43	59.3	2	400
MN97081	57.8	31.5	64	4	0	8	24	68	69.6	71	14.2	1.94	63.8	13.2	0.47	59.3	2	272
MN97083	54.7	26.9	48	6	2	7	21	70	67.5	54	14.2	1.87	64.5	13.5	0.49	60.8	4	400
MN97084	55.0	27.2	51	6	2	5	22	71	68.1	60	14.3	1.94	64.2	13.5	0.49	61.8	4	387

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 39

LOCATION: St. Paul, MN

NURSERY: PY-5

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)	PRO	ASH (14 % mb)						
CHRIS	58.8	28.1	69	3	2	6	14	78	77.3	75	15.5	1.84	63.6	14.8	0.44	61.4	3	400	
VERDE	57.6	28.5	72	3	3	4	23	70	70.2	77	14.3	1.88	66.4	13.4	0.42	60.3	3	321	
2375	60.2	32.6	67	3	3	10	20	67	71.5	73	14.8	1.84	65.4	14.0	0.42	60.0	3	400	
MN97087	58.6	28.7	60	5	2	8	25	65	68.7	55	13.4	2.00	60.7	12.5	0.52	58.2	2	318	
MN97089	56.6	27.4	59	4	4	10	21	65	69.5	60	14.0	1.87	66.0	13.3	0.53	59.0	3	386	
MN97091	56.6	30.0	63	4	3	13	26	58	64.7	58	13.9	2.09	64.2	12.6	0.56	58.2	2	300	
MN97097	58.8	33.4	73	2	6	17	22	55	65.4	61	13.9	1.81	62.3	12.9	0.44	59.0	2	240	
MN97105	57.8	30.6	69	3	0	2	14	84	76.0	76	14.2	2.01	60.7	13.2	0.57	59.6	2	353	

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 40

LOCATION: St. Paul, MN  
NURSERY: PY-6

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO (14% mb)	ASH (14% mb)		PRO (14 % mb)	ASH				
CHRIS	58.2	28.4	72	3	1	5	21	73	77.2	83	15.2	1.84	64.8	14.6	0.45	60.8	3	381
VERDE	57.8	29.2	74	2	2	6	19	73	70.0	78	14.2	1.81	68.6	13.5	0.44	60.0	3	307
2375	58.5	31.6	67	3	1	10	19	70	74.9	73	14.7	1.86	67.0	14.0	0.46	61.1	3	400
MN97118	57.9	32.6	73	3	2	12	25	61	71.2	62	13.6	1.84	62.9	12.9	0.42	58.6	1	360
MN97119	58.6	29.0	55	4	18	24	17	41	59.9	27	13.4	1.78	50.5	12.1	0.38	52.2	1	262
MN97123	55.8	28.0	53	6	0	6	18	76	71.8	57	15.2	1.91	60.7	14.3	0.34	58.6	2	274
MN97126	56.9	26.0	37	8	1	2	9	88	80.8	85	14.8	2.01	61.7	13.9	0.54	60.5	3	400

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 41

LOCATION: St. Paul, MN

NURSERY: PY-7

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14% mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C		PRO	ASH		PRO	ASH			

CHRIS	58.4	25.9	62	4	1	6	14	79	81.3	79	15.2	1.80	64.2	15.0	0.44	60.5	3	344
VERDE	57.8	28.5	70	2	1	5	23	71	71.9	75	14.1	1.89	67.3	13.4	0.43	59.3	2	246
2375	59.2	32.8	67	4	1	7	24	68	74.9	77	14.6	1.99	65.1	13.9	0.45	59.0	3	379
MN97139	56.6	29.4	63	4	1	6	20	73	74.2	78	14.1	1.86	65.4	13.5	0.46	58.2	2	274

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard



# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 42

LOCATION: St. Paul, MN

NURSERY: PY-8

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)			
CHRIS	59.4	27.6	70	3	2	5	16	77	77.5	79	15.2	1.81	64.5	14.3	0.42	59.0	3	393
VERDE	58.0	28.2	68	3	1	9	18	72	70.9	71	14.1	1.83	67.3	13.5	0.42	57.3	2	238
2375	59.5	32.5	68	3	2	8	27	63	71.6	71	14.3	1.87	67.0	13.7	0.52	57.9	3	400
MN97149	55.7	30.7	65	4	1	5	17	77	72.9	79	14.2	1.95	64.8	13.7	0.50	58.2	2	400
MN97156	57.0	30.2	60	5	2	7	30	61	65.4	51	14.2	1.90	61.3	13.8	0.49	55.8	1	381
MN97167	57.6	28.6	57	5	0	4	16	80	75.2	78	14.3	1.90	66.4	13.5	0.46	58.2	3	400
MN97168	60.0	29.1	69	3	1	4	14	81	72.1	68	14.0	1.77	63.6	13.4	0.43	61.8	5	354

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 43

LOCATION: *St. Paul, MN*

NURSERY: PY-9

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					DISTRIBUTION					PRO	ASH (14% mb)	EXT	PRO	ASH (14 % mb)				
					A	B	C	D							INDEX			
CHRIS	59.0	28.0	68	3	0	8	17	75	77.4	79	15.4	1.83	64.8	15.2	0.43	60.3	3	400
VERDE	57.6	28.6	68	3	0	5	22	73	71.2	75	14.3	1.83	67.9	13.5	0.45	59.0	2	283
2375	59.7	33.6	70	3	3	8	25	64	71.6	73	14.8	1.83	65.4	13.9	0.43	57.6	2	400
MN97172	58.3	26.3	36	8	4	7	21	68	70.1	53	14.3	1.98	63.8	13.3	0.43	57.3	2	358
MN97173	57.9	26.8	45	6	0	2	7	91	81.9	69	13.8	1.97	61.7	12.7	0.55	56.9	2	350
MN97178	57.0	25.0	24	11	2	5	13	80	77.4	60	15.0	1.90	66.4	14.8	0.79	60.3	4	400
MN97179	56.8	26.7	41	6	3	3	10	84	82.2	66	15.6	2.02	66.0	15.3	0.49	60.0	3	400
MN97183	57.0	25.0	50	5	2	2	5	91	87.4	62	14.7	1.84	67.0	14.4	0.44	58.6	3	399

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 44

LOCATION: *St. Paul, MN*

NURSERY: PY-10

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)				
					A	B	C	D										INDEX
CHRIS	58.3	26.7	63	3	0	2	13	85	87.0	69	15.5	1.94	65.1	14.9	0.45	60.3	3	388
VERDE	57.8	28.0	66	4	2	4	20	74	77.1	74	14.5	1.90	67.3	13.8	0.42	59.0	3	315
2375	54.0	29.3	37	8	5	16	23	56	67.9	42	15.5	2.01	58.5	14.7	0.45	58.2	3	307
MN97195	60.1	28.8	45	6	1	4	14	81	80.7	69	15.7	1.80	63.2	15.2	0.44	60.5	4	378
MN97198	60.9	25.8	32	8	19	29	23	29	52.8	19	15.2	1.91	49.5	13.5	0.37	56.2	3	260
MN97209	56.4	27.2	47	10	1	3	13	83	76.9	60	14.2	1.88	62.6	13.3	0.45	60.3	4	366

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 45

LOCATION: *St. Paul, MN*  
NURSERY: PY-11

FARGO, ND

NURSERY: PY-11																		
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH		PRO	ASH				
	A	B	C	D	INDEX													
CHRIS	58.4	26.3	58	4	2	2	12	84	80.2	78	15.2	1.82	62.6	14.3	0.43	60.8	4	345
VERDE	57.8	27.9	63	3	1	6	16	77	74.5	71	14.3	1.83	66.4	13.5	0.41	61.1	3	334
2375	58.6	28.1	47	4	0	4	12	84	83.9	70	14.3	1.91	64.2	13.4	0.48	59.0	3	368
MN97211	55.8	29.3	52	5	4	10	25	61	69.3	46	15.1	1.99	58.5	14.3	0.43	57.6	2	311
MN97213	56.2	30.6	57	5	1	3	17	79	81.1	64	14.9	1.94	63.0	13.8	0.50	57.3	3	180
MN97214	56.4	32.5	66	4	2	6	15	77	79.3	68	15.4	1.98	60.7	14.3	0.48	57.6	2	185

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard



# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 46

LOCATION: St. Paul, MN  
NURSERY: PY-12

FARGO, ND

NURSERY: PY-12		SKWCS HARDNESS										NIR		WHEAT		FLOUR		MIX		FALLING	
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION			HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	ABS	PAT	NUMBER (sec)					
					A	B	C										D	INDEX			
CHRIS	59.0	27.5	68	3	1	4	16	79	80.5	68	15.5	1.85	64.8	15.1	0.44	60.3	3	400			
VERDE	57.1	28.3	65	5	1	5	19	75	77.1	75	14.4	1.83	67.3	13.6	0.45	60.0	2	400			
2375	59.9	32.9	66	3	2	10	22	66	77.6	63	14.8	1.90	66.4	13.6	0.57	60.5	3	400			
MN97237	57.5	24.3	25	12	1	0	3	96	101.4	69	14.0	2.00	60.4	13.4	0.57	60.0	3	272			

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 47

LOCATION: St. Paul, MN  
NURSERY: PY-13

FARGO, ND

LOCATION: St. Paul, MN		FARGO, ND																
NURSERY: PY-13																		
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14% mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)		
					A	B	C		D	INDEX		PRO	ASH				PRO	ASH
CHRIS	58.5	26.8	63	3	1	5	13	81	81.0	71	15.1	1.75	64.2	14.8	0.44	60.5	4	387
VERDE	57.8	27.9	70	4	1	4	18	77	76.3	75	14.6	1.81	65.4	13.5	0.43	60.3	3	278
2375	60.3	34.1	72	4	2	9	27	62	71.5	68	14.2	1.85	70.5	13.3	0.45	59.3	3	394
MN97255	58.9	32.5	70	2	0	12	30	58	72.2	63	14.0	1.66	69.5	13.2	0.44	59.0	2	285
MN97257	58.3	32.2	70	3	2	11	30	57	66.6	54	14.0	1.95	61.3	13.1	0.47	57.9	2	236
MN97261	56.9	28.0	41	10	0	5	14	81	79.2	62	13.2	1.73	66.4	12.4	0.50	57.3	2	263

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

## USDA / ARS WHEAT QUALITY LAB

Table 48

LOCATION: *St. Paul, MN*  
NURSERY: PY-14

### FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					DISTRIBUTION					PRO (14% mb)	ASH (14% mb)	PRO (14 % mb)	ASH (14 % mb)						
					A	B	C	D							INDEX				
CHRIS	59.4	27.3	63	4	1	7	14	78	76.4	71	14.9	1.82	67.3	14.2	0.45	60.0	3	400	
VERDE	58.1	29.6	72	3	1	6	20	73	76.5	73	13.8	1.79	69.8	13.1	0.47	59.6	3	271	
2375	59.8	33.2	70	2	1	9	25	65	72.2	64	14.1	1.70	69.4	13.2	0.46	58.6	3	400	
MN97283	59.1	27.3	56	6	1	5	21	73	76.7	67	15.3	1.79	67.6	14.7	0.48	59.6	3	351	
MN97286	59.9	30.6	68	3	0	2	13	85	87.1	68	13.8	1.89	67.3	13.4	0.51	57.9	2	246	

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 49

LOCATION: *St. Paul, MN*  
NURSERY: PY-15

FARGO, ND

NURSERY: PY-15																			
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS					NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					DISTRIBUTION						PRO (14% mb)	ASH (14% mb)	EXT (%)	FLOUR					
					A	B	C	D	INDEX					PRO (14 % mb)	ASH (14 % mb)				
CHRIS	58.9	28.8	66	3	3	5	17	75	76.5	76	15.0	1.78	66.4	14.7	0.44	60.8	3	383	
VERDE	58.4	30.4	76	3	3	6	25	66	70.6	73	14.0	1.95	68.9	12.8	0.45	60.0	3	307	
2375	60.2	33.5	69	4	2	7	26	65	72.2	70	14.1	1.70	68.9	13.3	0.44	58.2	2	400	
MN97302	59.2	28.8	51	6	0	5	14	81	82.0	76	15.7	1.95	67.3	14.9	0.44	62.1	4	391	
MN97305	58.3	32.8	73	3	6	17	33	44	61.6	58	14.9	1.87	67.3	14.0	0.43	57.6	3	378	
MN97307	58.7	28.2	60	4	1	6	20	73	73.3	56	13.6	1.84	69.2	12.8	0.46	55.3	2	361	
MN97311	58.4	30.2	62	4	2	6	17	75	77.5	71	14.8	1.91	65.4	14.2	0.47	60.3	4	340	

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard



1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 50

LOCATION: St. Paul, MN  
NURSERY: PY-16

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)						

CHRIS	58.4	26.9	63	3	1	4	12	83	81.7	82	15.6	1.80	64.5	14.8	0.43	57.6	2	395
VERDE	56.8	29.4	73	2	0	4	19	77	77.7	69	13.8	1.97	65.4	12.6	0.43	56.9	3	392
2375	60.1	34.4	73	2	1	9	29	61	71.1	75	14.5	1.74	66.4	13.3	0.45	55.8	2	383
MN97332	57.5	30.1	56	4	2	7	16	75	77.3	52	14.8	2.41	58.7	13.8	0.47	56.9	3	262

DISTRIBUTION:

A=% Soft

B=% Semt-Soft

C=% Semt-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

LOCATION: St. Paul, MN  
NURSERY: PY-17

USDA / ARS  
WHEAT QUALITY LAB  
FARGO, ND

Table 51

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		INDEX	PRO		ASH (14% mb)	PRO				ASH (14 % mb)
CHRIS	58.6	27.2	63	3	2	5	11	82	88.4	68	15.3	1.77	64.8	14.5	0.43	59.6	3	400
VERDE	58.1	29.6	73	2	1	6	20	73	74.1	71	13.8	1.67	67.3	12.7	0.44	55.5	2	297
2375	59.1	32.8	68	3	2	3	18	77	89.3	68	13.6	1.74	67.3	12.6	0.47	55.0	2	400
MN97351	57.4	29.5	58	5	3	10	19	68	77.8	55	13.6	1.76	67.6	12.6	0.40	55.8	3	290
MN97352	58.0	28.6	57	5	1	1	12	86	84.7	77	15.0	1.77	67.0	14.1	0.51	57.9	4	385

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 52

LOCATION: *St. Paul, MN*  
NURSERY: PY-18

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	58.8	27.5	65	4	0	2	18	80	76.5	72	15.7	1.77	64.5	14.7	0.44	57.6	3	400
VERDE	57.8	30.2	73	2	6	15	23	56	64.0	80	14.0	1.90	67.3	13.1	0.48	59.3	3	288
2375	59.8	33.7	73	3	1	12	24	63	72.1	69	14.4	1.85	66.4	13.3	0.44	57.3	3	400
MMN97364	57.4	29.5	51	6	50	14	8	28	40.9	41	14.9	1.88	54.2	13.4	0.41	55.5	2	239
MMN97365	57.6	28.0	49	7	2	3	9	86	83.7	68	14.7	1.87	63.9	13.9	0.48	60.0	3	301
MMN97367	57.8	29.4	57	6	2	9	22	67	70.9	61	14.1	1.78	65.1	13.3	0.43	56.5	3	398
MMN97369	57.3	29.2	56	5	4	12	15	69	74.3	64	14.7	1.91	63.6	13.7	0.47	60.0	5	400
MMN97372	57.4	29.7	68	4	3	3	13	81	75.3	76	14.8	1.88	63.6	13.8	0.44	59.0	4	278

DISTRIBUTION:

A=% Soft

B=% Semt-Soft

C=% Semt-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

LOCATION: *St. Paul, MN*  
 NURSERY: PY-19

## USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 53

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D										
CHRIS	58.0	27.5	65	5	2	6	19	73	74.9	75	15.5	1.84	64.5	14.6	0.43	58.2	3	400
VERDE	57.3	29.0	72	3	1	4	17	78	73.3	81	14.0	1.79	67.3	13.2	0.44	57.6	2	312
2375	59.4	32.8	69	4	1	7	22	70	81.4	74	14.3	1.75	67.3	13.4	0.44	57.3	2	400
MN97395	57.8	31.5	68	3	5	24	22	49	63.0	54	14.3	1.81	65.4	13.8	0.41	56.5	2	343
MN97396	57.2	27.1	46	8	2	9	19	70	77.1	48	15.0	1.73	67.0	14.0	0.43	58.2	3	320

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard



# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 54

LOCATION: *St. Paul, MN*  
NURSERY: PY-20

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)				
CHRIS	59.5	27.8	46	8	3	6	16	75	77.0	74	15.3	1.81	66.4	14.5	0.43	59.0	3	400
VERDE	58.4	30.5	66	4	3	9	24	64	69.7	89	14.0	1.72	68.5	13.1	0.42	56.5	2	304
2375	60.1	32.7	76	5	2	10	26	62	70.7	66	13.6	1.65	67.3	12.4	0.43	55.0	2	400
MN97400	59.2	34.7	81	3	11	27	25	37	57.5	52	14.9	1.74	65.4	14.1	0.43	58.2	3	289
MN97419	58.6	27.5	56	4	3	8	21	68	69.1	66	13.0	1.80	65.1	12.1	0.41	58.6	4	318

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 55

LOCATION: *St. Paul, MN*

NURSERY: PY-21

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	60.2	28.7	65	4	0	6	16	78	79.5	77	15.1	1.78	63.9	14.2	0.40	59.6	3	400
VERDE	58.6	30.3	73	3	1	9	24	66	72.2	74	14.4	1.75	67.3	13.1	0.42	58.2	3	296
2375	60.8	34.0	69	4	3	9	30	58	69.3	71	14.4	1.78	67.0	13.2	0.44	58.2	3	400
MN97421	59.8	31.8	65	3	0	10	28	62	69.4	74	15.1	1.90	65.7	14.0	0.42	60.5	4	360
MN97422	59.9	31.6	67	3	18	26	23	33	53.8	62	14.4	1.84	66.0	13.5	0.42	58.6	4	362
MN97423	59.8	31.2	66	3	1	4	26	69	70.3	71	14.3	1.88	66.0	13.5	0.41	58.6	4	376
MN97424	59.3	31.6	67	3	1	6	28	65	67.1	72	13.7	1.85	63.2	12.5	0.49	55.5	2	309
MN97425	61.1	31.2	64	3	1	5	26	68	71.4	62	13.9	1.81	64.5	13.0	0.44	56.5	3	298
MN97434	61.1	32.5	71	3	4	8	21	67	75.4	74	15.5	1.75	64.5	14.3	0.46	64.0	4	400

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 56

LOCATION: *St. Paul, MN*  
NURSERY: PY-22

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)	FLOUR (14% mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO	ASH		PRO	ASH				
CHRIS	57.7	27.8	61	5	2	5	20	73	80.1	68	15.7	1.77	64.2	15.2	0.45	60.0	3	384
VERDE	58.4	30.3	73	3	2	6	27	65	67.3	75	14.0	1.91	67.3	13.1	0.42	58.2	3	275
2375	59.5	32.2	69	3	1	5	23	71	77.4	68	14.5	1.74	66.0	13.4	0.43	59.0	3	398
MN97448	60.2	28.6	62	5	2	11	17	70	73.2	54	15.3	1.79	64.2	14.4	0.43	60.3	3	258
MN97450	58.2	26.3	41	9	2	3	12	83	86.6	55	13.1	1.80	64.2	12.4	0.51	57.3	3	392
MN97456	59.0	32.1	69	5	0	2	13	85	86.5	79	15.8	1.80	64.5	14.7	0.46	60.8	5	288

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 57

LOCATION: St. Paul, MN		FARGO, ND																
NURSERY: PY-23																		
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)		
					A	B	C		D	INDEX		PRO	ASH				PRO	ASH
CHRIS	58.9	27.3	66	3	1	7	15	77	82.9	73	15.2	1.84	65.1	14.4	0.45	60.3	4	393
VERDE	59.0	30.4	73	3	1	8	26	65	71.2	79	14.0	1.70	67.9	12.8	0.43	58.6	3	338
2375	60.3	33.7	71	3	1	12	27	60	70.3	72	14.5	1.71	67.6	13.4	0.41	59.3	3	400
MN97469	60.5	31.3	68	5	1	4	20	75	75.5	91	13.6	1.74	68.2	12.8	0.48	59.0	3	400
MN97479	60.2	32.4	74	3	1	7	28	64	67.5	68	13.8	1.78	65.4	12.9	0.48	59.0	3	393
MN97480	60.8	34.4	79	3	0	4	23	73	73.9	98	15.3	1.93	63.9	14.4	0.49	60.8	3	318
MN97482	59.2	31.9	70	3	2	4	27	67	70.1	80	13.6	1.78	64.8	12.9	0.46	59.6	4	335

## DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard



# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 58

LOCATION: St. Paul, MN  
NURSERY: PY-24

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO	ASH		PRO	ASH				
CHRIS	58.9	27.0	64	4	3	7	15	75	76.2	80	15.3	1.70	64.8	14.7	0.45	60.5	4	400
VERDE	58.6	30.1	74	3	1	7	26	66	67.7	80	14.2	1.76	67.9	13.1	0.43	57.3	2	361
2375	60.6	33.9	71	4	1	8	26	65	72.7	78	14.5	1.75	66.4	13.3	0.43	59.6	3	400
MN97491	60.4	32.6	72	2	1	7	17	75	76.7	87	15.2	1.95	67.6	14.2	0.63	62.5	3	376
MN97496	60.7	33.7	76	2	1	4	24	71	69.3	86	15.0	1.80	66.4	14.1	0.48	59.3	4	337
MN97498	60.7	33.4	73	3	1	2	25	72	69.5	77	15.1	1.90	65.1	14.2	0.48	58.6	4	272
MN97500	59.8	34.4	75	3	2	4	24	70	74.3	89	14.9	1.83	64.5	14.0	0.47	62.5	5	375
MN97503	58.7	33.0	70	2	1	6	24	69	69.9	76	15.0	1.85	63.9	14.2	0.48	59.3	4	400

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 59

LOCATION: St. Paul, MN  
NURSERY: PY-25

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)		
					A	B	C		D	INDEX		PRO	ASH (14% mb)				PRO	ASH (14 % mb)
CHRIS	54.2	24.3	34	9	3	3	7	87	90.4	67	17.3	2.06	57.9	16.2	0.47	60.0	4	376
VERDE	56.9	27.5	60	3	0	3	13	84	83.4	71	14.5	1.88	64.2	13.7	0.42	59.3	3	397
2375	57.4	31.1	57	4	2	7	20	71	80.4	69	15.7	2.03	61.3	14.5	0.46	58.6	4	400
MN97513	56.5	26.8	53	5	36	28	19	17	41.1	16	14.7	2.29	36.9	12.4	0.41	52.6	2	244
MN97514	55.3	27.2	50	7	58	19	10	13	32.4	22	14.8	2.03	33.3	12.6	0.41	55.5	3	293
MN97518	59.6	29.9	62	3	1	1	5	93	93.5	77	15.9	1.96	58.7	14.5	0.45	58.2	3	400
MN97519	58.4	32.7	63	3	27	21	9	43	57.5	28	15.4	2.07	43.9	12.5	0.38	55.0	2	250
MN97520	57.0	25.5	39	7	17	11	9	63	73.1	49	15.3	2.09	52.8	13.5	0.44	57.9	3	385

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 60

LOCATION: *St. Paul, MN*  
NURSERY: PY-26

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		INDEX	PRO	ASH (14% mb)	PRO		ASH (14 % mb)					
CHRIS	53.8	24.9	34	16	2	9	12	77	79.6	59	15.6	1.97	60.0	14.7	0.57	57.6	3	389		
VERDE	55.3	26.6	54	12	2	8	17	73	75.7	70	14.6	1.78	65.7	13.9	0.50	57.9	3	368		
2375	54.9	30.5	56	19	2	4	10	84	94.4	62	14.6	1.79	61.0	13.0	0.48	57.3	3	400		
MN97536	59.0	24.5	44	10	17	20	19	44	59.8	12	13.3	1.95	51.0	11.7	0.44	51.6	2	315		
MN97541	59.4	26.8	57	5	1	2	4	93	93.9	64	12.9	2.04	60.6	11.7	0.54	56.5	3	326		
MN97542	57.0	27.7	56	6	2	8	12	78	83.9	59	14.7	1.70	64.8	14.4	0.45	60.0	4	349		
MN97543	58.3	30.4	70	5	1	4	14	81	85.1	76	15.6	1.76	65.1	14.8	0.49	60.5	4	326		
MN97544	55.6	28.1	47	10	4	9	12	75	82.2	46	14.7	1.64	65.1	14.2	0.58	59.3	4	400		

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 61

LOCATION: St. Paul, MN

NURSERY: PY-27

FARGO, ND

NURSERY: PY-2/		SKWCS HARDNESS										NIR		WHEAT		FLOUR		MIX		FALLING	
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	FLOUR		MIX ABS	MIX PAT	NUMBER (sec)				
					A	B	C	D					PRO	ASH (14 % mb)							
CHRIS	58.4	26.5	64	4	1	5	14	80	86.4	70	15.5	2.00	64.2	14.8	0.53	60.3	3	400			
VERDE	57.9	30.1	73	3	1	6	23	70	74.7	65	14.4	1.75	67.9	13.1	0.49	57.9	3	271			
2375	60.6	33.8	74	2	0	7	20	73	80.9	72	14.3	1.74	66.4	13.0	0.45	59.0	3	400			
MN97548	59.7	29.7	49	5	3	7	16	74	79.8	58	15.1	1.75	63.6	14.5	0.52	63.1	4	400			
MN97551	61.3	26.9	64	4	1	1	5	93	98.9	69	15.5	1.88	64.2	14.7	0.53	57.6	4	400			
MN97553	54.6	23.2	22	16	3	3	7	87	86.0	55	13.6	2.17	66.0	13.0	0.73	57.9	4	400			
MN97555	59.4	26.7	29	8	1	4	13	82	85.2	63	15.7	1.98	64.2	14.5	0.52	61.4	5	400			
MN97558	60.8	28.2	49	7	0	1	5	94	95.5	85	14.1	1.75	65.1	13.0	0.55	57.9	3	400			
MN97561	59.9	27.1	48	5	2	8	14	76	81.1	63	15.6	1.85	67.9	15.1	0.49	61.4	3	400			
MN97563	59.0	28.3	67	5	10	9	8	73	75.4	54	13.9	1.74	58.9	12.4	0.47	55.0	2	363			

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard



# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 62

LOCATION: *St. Paul, MN*  
NURSERY: PY-28

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)		
					A	B	C		D	INDEX		PRO	ASH				PRO	ASH
CHRIS	55.5	24.6	40	7	2	4	8	86	92.5	66	17.5	2.03	63.6	16.5	0.51	59.6	4	400
VERDE	56.5	26.3	53	4	1	1	9	89	90.3	72	15.1	2.06	66.0	13.9	0.46	58.2	3	343
2375	57.2	28.8	51	5	1	4	11	84	87.9	63	16.1	2.06	64.5	14.6	0.51	59.0	4	394
MN97568	56.2	28.7	63	4	0	1	1	88	82.3	80	15.1	1.95	63.6	14.2	0.47	59.0	4	342
MN97570	54.4	29.0	46	5	0	1	8	91	83.3	65	15.9	2.17	59.4	14.6	0.53	59.6	4	387
MN97571	56.1	27.7	58	3	0	2	12	86	85.3	76	14.5	1.91	63.0	13.4	0.43	58.2	3	254

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 63

LOCATION: St. Paul, MN  
NURSERY: PY-29

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		INDEX	PRO		ASH (14% mb)	PRO				ASH (14 % mb)
CHRIS	58.4	24.9	58	5	1	4	12	83	84.7	62	15.6	1.96	64.5	15.1	0.55	57.9	3	386
VERDE	58.1	29.4	73	2	2	3	18	77	76.6	73	14.3	1.73	67.6	13.4	0.43	57.6	3	289
2375	60.3	32.9	70	3	1	6	26	67	77.0	81	14.7	1.67	65.4	13.5	0.45	56.2	2	394
MN97589	59.4	28.3	67	3	16	14	20	50	61.5	41	14.2	1.68	57.5	13.0	0.39	56.5	1	355
MN97596	60.1	26.5	29	14	1	2	10	87	86.7	61	13.9	1.66	62.6	13.1	0.44	60.0	5	400
MN97598	59.8	28.7	47	14	0	2	12	86	91.7	66	15.9	1.87	61.0	15.1	0.47	62.1	4	400
MN97602	60.5	29.2	67	4	0	3	10	87	84.9	80	14.9	1.82	64.8	14.2	0.44	60.8	5	400
MN97603	60.6	28.1	37	12	1	2	5	92	93.5	77	15.5	1.63	59.8	14.5	0.42	60.5	7	385
MN97604	59.0	30.2	70	3	1	3	12	84	82.0	73	15.9	1.86	66.7	15.1	0.46	61.1	7	360
MN97606	59.7	26.1	52	7	2	3	14	81	78.5	63	14.2	1.69	67.3	13.0	0.52	57.6	4	398
MN97607	59.0	29.5	70	4	2	7	18	73	75.1	77	15.6	1.84	64.8	14.6	0.44	58.2	5	354
MN97608	59.1	29.7	73	3	1	2	10	87	81.1	76	15.2	1.81	66.4	14.6	0.45	57.9	5	355
MN97609	59.6	29.9	75	2	0	2	12	86	80.4	81	15.7	1.90	66.4	14.8	0.43	59.3	5	370

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 64

LOCATION: St. Paul, MN  
NURSERY: PY-30

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	58.9	25.5	59	4	1	6	10	83	80.6	74	14.6	1.74	63.2	14.1	0.43	58.6	4	400
VERDE	57.6	28.8	68	4	2	4	16	78	76.2	77	14.2	1.76	66.1	13.1	0.43	57.9	2	321
2375	60.3	32.5	71	5	1	8	22	69	76.5	76	14.8	1.84	64.8	13.4	0.42	59.0	3	400
MN97611	59.1	29.3	75	2	0	1	9	90	86.1	72	15.7	1.95	67.3	14.9	0.57	60.8	5	400
MN97612	59.0	29.7	73	3	0	1	10	89	89.0	74	15.6	1.86	65.4	14.7	0.43	59.0	4	340
MN97617	60.2	31.3	76	3	1	9	27	63	69.4	74	14.9	1.74	66.7	14.1	0.43	58.6	3	333
MN97623	60.5	30.4	74	2	1	10	25	64	70.4	70	14.2	1.77	65.7	13.4	0.41	57.6	3	292
MN97626	61.0	33.3	80	2	3	7	24	66	70.2	76	14.9	1.99	65.4	13.8	0.42	59.0	4	302

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 65

LOCATION: St. Paul, MN

NURSERY: PY-31

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14% mb)				
					A	B	C	D										INDEX
CHRIS	59.5	27.4	66	4	3	5	18	74	78.2	73	15.6	1.77	64.2	14.7	0.43	59.6	3	400
VERDE	58.2	28.5	75	3	1	5	20	74	75.8	78	14.5	1.82	66.7	13.3	0.43	57.6	2	249
2375	60.5	33.3	74	4	1	9	25	65	75.7	73	14.4	1.74	66.7	13.3	0.43	57.9	3	400
MN97636	57.0	28.4	50	7	4	6	18	72	73.3	63	12.3	1.76	66.0	11.7	0.50	56.2	4	377
MN97637	58.0	32.9	79	2	1	4	18	77	73.9	82	14.4	1.94	65.4	13.3	0.44	58.2	3	295
MN97638	58.4	26.8	54	4	1	3	10	86	80.5	92	15.3	1.84	60.7	14.5	0.50	58.6	3	286
MN97645	56.7	30.9	64	4	1	5	19	75	71.8	69	15.0	2.04	55.7	13.8	0.47	60.3	3	131
MN97649	61.2	28.1	66	4	0	4	18	78	75.5	61	14.5	1.68	64.8	13.9	0.39	60.3	4	343
MN97650	59.7	29.7	71	2	2	2	10	86	81.8	64	15.6	1.89	64.2	14.8	0.39	60.0	5	378
MN97651	59.4	27.1	66	3	1	3	6	90	87.7	75	15.5	1.98	61.5	14.6	0.43	61.4	5	311

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard



# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 66

LOCATION: *St. Paul, MN*  
NURSERY: PY-32

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO ASH (14% mb)	PRO ASH (14 % mb)							
					A	B	C	D					INDEX					
CHRIS	59.6	26.1	64	3	2	5	16	77	76.0	76	15.7	1.76	61.1	14.9	0.41	59.3	4	389
VERDE	58.7	29.4	73	3	1	4	22	73	72.1	91	14.6	1.88	67.0	13.4	0.42	58.2	3	297
2375	61.1	34.4	69	3	2	9	26	63	68.7	77	14.8	1.79	63.9	13.6	0.40	58.2	3	400
MN97661	60.6	30.2	79	1	1	1	19	79	78.0	76	16.5	1.90	64.5	15.6	0.42	60.5	5	378
MN97664	61.5	28.7	75	2	1	0	10	89	82.4	82	16.2	1.88	64.5	15.6	0.44	60.3	5	366
MN97665	61.2	30.4	77	2	1	7	21	71	72.6	61	15.4	1.76	65.4	14.7	0.40	61.8	3	378
MN97668	61.4	28.6	76	3	1	2	13	84	84.3	81	16.2	1.76	66.0	15.4	0.43	59.3	4	393
MN97670	60.5	28.8	74	2	1	2	9	88	83.1	77	16.8	1.89	64.5	16.1	0.42	60.3	5	378

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 67

LOCATION: *St. Paul, MN*  
NURSERY: PY-33

FARGO, ND

NURSERY: PY-33																		
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		INDEX	PRO (14% mb)	ASH (%)	EXT (%)	PRO (14 % mb)	ASH (14 % mb)			
CHRIS	58.2	25.0	53	4	1	2	13	84	84.2	75	15.8	1.87	63.2	14.9	0.43	60.5	4	389
VERDE	58.6	27.7	69	3	0	5	15	80	77.3	80	14.5	1.77	67.9	13.4	0.47	60.8	3	309
2375	60.5	32.9	71	3	1	4	24	71	74.6	80	15.0	1.77	65.4	13.4	0.46	60.0	3	400
MN97680	59.1	30.2	65	5	47	28	12	13	36.9	19	12.4	1.69	40.4	10.4	0.39	53.2	2	303
MN97685	59.1	30.1	61	4	0	1	11	88	82.8	80	14.6	2.00	61.1	13.2	0.48	55.8	2	351
MN97686	60.1	30.5	70	5	1	1	10	88	82.9	78	15.3	1.82	66.4	14.0	0.45	56.9	3	388
MN97693	60.6	29.8	80	3	0	6	16	78	76.8	76	15.1	1.79	65.4	14.0	0.44	59.0	4	390

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 68

LOCATION: St. Paul, MN  
NURSERY: PY-34

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)		
					A	B	C	D		INDEX	PRO (14% mb)	ASH (14% mb)	EXT (%)				PRO (14 % mb)	ASH
CHRIS	58.8	27.3	67	3	8	13	22	57	68.7	71	15.7	1.81	65.7	15.1	0.44	58.2	3	368
VERDE	58.0	29.9	72	3	2	4	23	71	74.0	77	14.5	1.76	66.7	13.3	0.42	57.9	2	344
2375	58.9	32.5	66	5	2	7	19	72	78.6	75	15.2	1.84	66.0	14.0	0.43	60.0	3	400
MN97694	60.0	25.5	46	9	1	2	7	90	87.4	76	14.2	1.78	61.7	13.3	0.50	59.3	3	398
MN97695	62.2	29.2	75	3	1	8	23	68	72.2	66	15.4	1.70	67.0	14.3	0.39	62.7	5	388
MN97707	60.6	34.1	81	2	62	15	9	14	31.5	7	14.4	2.04	45.6	11.9	0.44	56.5	2	216
MN97712	59.8	27.5	61	4	30	15	13	42	54.5	36	14.8	1.95	54.1	13.1	0.43	58.2	2	219

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 69

LOCATION: St. Paul, MN		FARGO, ND																	
NURSERY: PY-35		SKWCS HARDNESS DISTRIBUTION					NIR HARD-NESS		WHEAT PRO (14% mb)		FLOUR EXT (%)		FLOUR PRO (14 % mb)		MIX ABS		MIX PAT		FALLING NUMBER (sec)
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A	B	C	D	INDEX	NESS	PRO	ASH	EXT (%)	PRO	ASH	ABS	PAT	NUMBER	(sec)
CHRIS	59.7	27.8	70	3	1	4	16	79	81.8	79	15.7	1.80	64.8	14.8	0.42	59.3	3		400
VERDE	58.2	29.0	70	3	1	6	14	79	76.1	76	14.6	1.88	67.0	13.2	0.44	59.0	2		314
2375	60.5	33.4	70	3	0	9	25	66	75.8	71	15.0	1.83	64.8	13.7	0.43	59.3	3		379
MN97722	60.3	24.6	38	9	15	20	23	42	57.7	8	14.9	1.89	44.8	12.7	0.39	57.3	3		260
MN97729	57.7	24.3	25	13	2	3	11	84	86.2	46	14.3	2.09	60.7	12.9	0.50	57.3	4		400
MN97730	58.7	28.4	62	5	2	2	7	89	86.1	77	13.8	1.95	63.6	12.8	0.48	57.3	2		295
MN97733	58.4	32.4	74	2	48	15	11	26	40.8	6	15.7	1.85	47.2	13.5	0.37	54.6	2		375

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard



# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 70

LOCATION: St. Paul, MN

NURSERY: PY-36

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	58.4	26.1	57	4	1	5	10	84	84.6	72	15.7	1.92	63.0	14.9	0.48	57.6	3	400
VERDE	57.8	27.6	69	4	2	4	14	80	75.4	77	14.9	1.80	66.7	13.4	0.41	57.6	2	325
2375	59.8	32.4	74	2	1	4	21	74	78.6	75	15.3	1.94	64.8	13.8	0.51	57.9	4	400
MN97736	56.2	26.0	64	2	1	6	14	79	76.4	53	15.0	1.92	59.8	14.1	0.48	57.6	3	400
MN97746	61.1	29.4	67	3	13	16	18	53	65.2	44	14.9	2.25	54.7	13.9	0.47	57.6	3	371
MN97750	59.4	30.1	78	1	33	26	16	25	46.8	10	15.9	1.97	42.9	13.3	0.43	55.8	2	274
MN97754	57.2	26.1	52	6	2	5	14	79	75.7	68	14.5	2.05	62.4	13.1	0.62	59.3	3	400
MN97756	59.9	27.4	70	3	1	2	14	83	81.9	73	14.8	1.97	62.0	13.6	0.50	57.3	2	341

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 71

LOCATION: *St. Paul, MN*

FARGO, ND

NURSERY: PY-37

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C		PRO	ASH						

CHRIS	59.7	28.6	72	3	1	9	15	75	77.1	82	15.7	1.81	61.3	15.2	0.35	60.5	3	369
VERDE	58.0	28.6	70	3	1	3	18	78	75.6	77	14.6	1.87	64.5	13.5	0.38	58.2	2	311
2375	59.9	32.7	69	4	2	8	20	70	76.9	81	15.3	1.89	62.6	13.9	0.42	58.2	2	400
MN97761	60.0	26.0	54	6	1	3	11	85	77.6	76	15.3	1.68	63.9	14.6	0.35	56.5	3	235
MN97762	59.1	31.4	81	2	21	18	22	39	54.5	33	14.2	1.90	53.3	12.7	0.41	51.9	1	389
MN97773	59.7	29.8	67	4	0	10	19	71	71.0	57	15.1	2.02	57.5	14.0	0.39	55.0	2	314

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 72

LOCATION: *St. Paul, MN*  
NURSERY: PY-39

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)	EXT	PRO	ASH (14 % mb)				
CHRIS	60.4	27.1	68	2	2	4	11	83	82.6	81	15.9	1.80	64.2	14.8	0.42	59.6	3	400
VERDE	59.0	29.0	73	3	1	4	18	77	73.1	75	14.9	1.85	66.4	13.5	0.41	59.0	3	282
2375	59.2	31.0	67	3	0	7	23	70	73.9	72	15.4	1.86	64.8	14.0	0.42	57.6	3	400
MN97800	57.2	28.2	61	5	2	6	15	77	77.3	70	14.5	1.87	64.2	13.7	0.46	63.1	3	347
MN97803	58.4	29.5	64	4	1	6	15	78	77.3	73	15.3	1.87	61.7	14.2	0.46	60.5	3	285

DISTRIBUTION: A=% Soft

B=% Semt-Soft

C=% Semt-Hard

D=% Hard

# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 73

LOCATION: St. Paul, MN  
NURSERY: PY-40

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR	WHEAT		FLOUR EXT (%)	FLOUR (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	HARD- NESS	PRO	ASH		PRO	ASH			

CHRIS	58.7	26.6	67	4	0	5	13	82	81.7	78	16.1	1.89	61.7	15.2	0.41	61.4	4	343
VERDE	57.4	27.9	63	5	1	4	17	78	72.9	79	14.9	1.93	64.8	13.5	0.41	58.6	3	377
2375	60.0	31.9	65	3	2	6	25	67	75.5	73	15.4	1.97	63.0	13.7	0.42	58.2	3	400
MN97822	56.8	24.9	34	8	1	4	11	84	77.2	57	15.4	2.12	54.6	14.3	0.45	57.3	4	388
MN97835	57.8	24.5	36	10	56	21	11	12	33.3	5	13.9	1.90	32.4	11.0	0.41			337
MN97837	58.2	29.2	65	4	2	5	18	75	72.2	53	14.2	1.87	61.6	12.7	0.47	57.9	3	329

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard



# 1997 Spring Wheat Quality Report

USDA / ARS  
WHEAT QUALITY LAB

Table 74

LOCATION: St. Paul, MN  
NURSERY: PY-41

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO (14% mb)	ASH (14% mb)		PRO (14 % mb)	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	59.2	27.6	70	3	1	7	9	83	85.8	81	15.6	1.97	62.6	14.7	0.43	57.9	3	400
VERDE	57.4	27.7	67	4	1	4	16	79	76.8	73	14.6	2.03	67.0	13.3	0.46	58.6	3	329
2375	59.9	35.0	73	3	3	9	29	59	69.7	73	15.3	2.01	63.6	13.7	0.42	57.9	3	400
MN97846	59.0	29.9	74	2	40	23	12	25	43.7	12	13.5	1.81	42.3	11.4	0.37	51.3	2	325
MN97847	59.1	28.8	63	3	44	23	19	14	39.6	15	13.6	2.09	42.1	11.2	0.42	52.2	2	290
MN97849	59.4	29.5	65	2	1	3	11	85	78.6	60	13.2	1.81	61.1	11.4	0.44	53.8	2	387
MN97852	57.8	29.2	72	3	29	23	26	22	46.5	15	13.9	1.85	44.3	12.1	0.43	56.2	2	316
MN97853	57.4	31.2	77	2	50	26	12	12	34.9	14	14.0	1.96	43.0	11.0	0.39	53.5	2	287
MN97854	55.8	27.0	59	5	0	2	8	90	82.0	76	15.9	2.09	60.2	14.6	0.51	58.6	5	400
MN97855	59.4	31.8	79	2	0	2	17	81	77.2	93	14.8	1.99	64.2	13.6	0.48	59.3	2	400
MN97856	59.5	30.9	78	1	44	19	12	25	42.7	7	13.5	1.80	45.6	11.3	0.37	51.6	1	319

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard





